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18 MAY 1959
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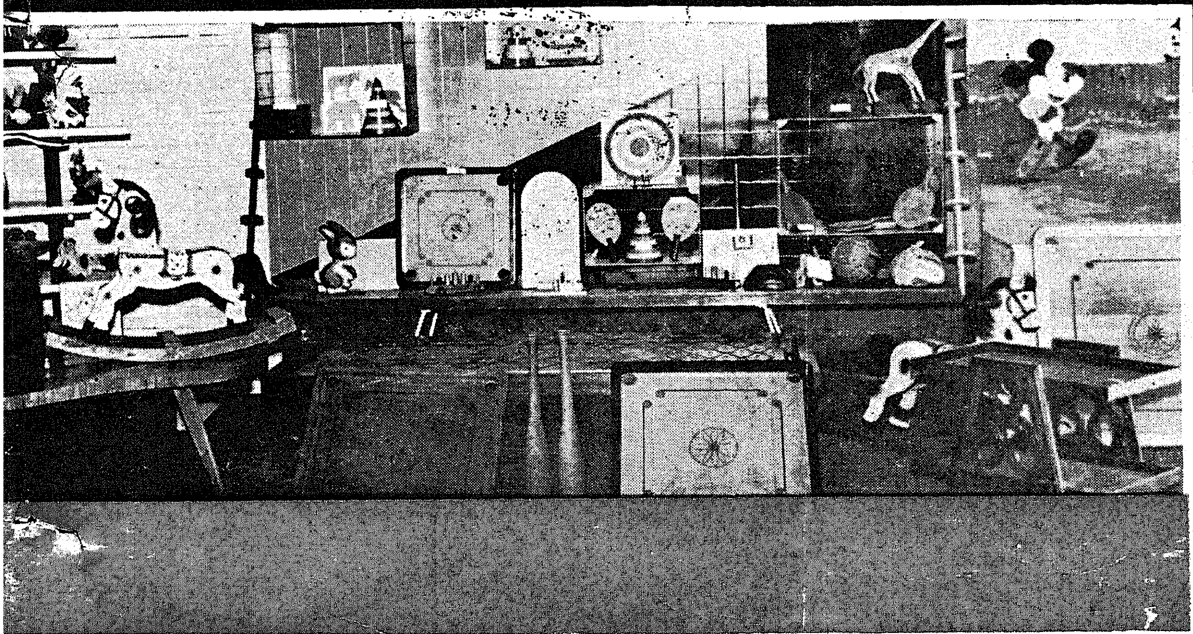

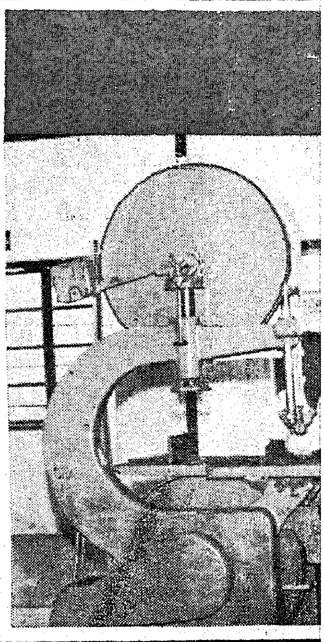

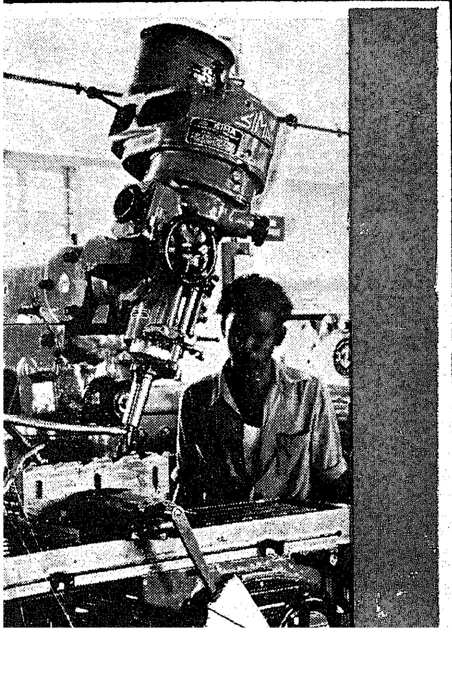

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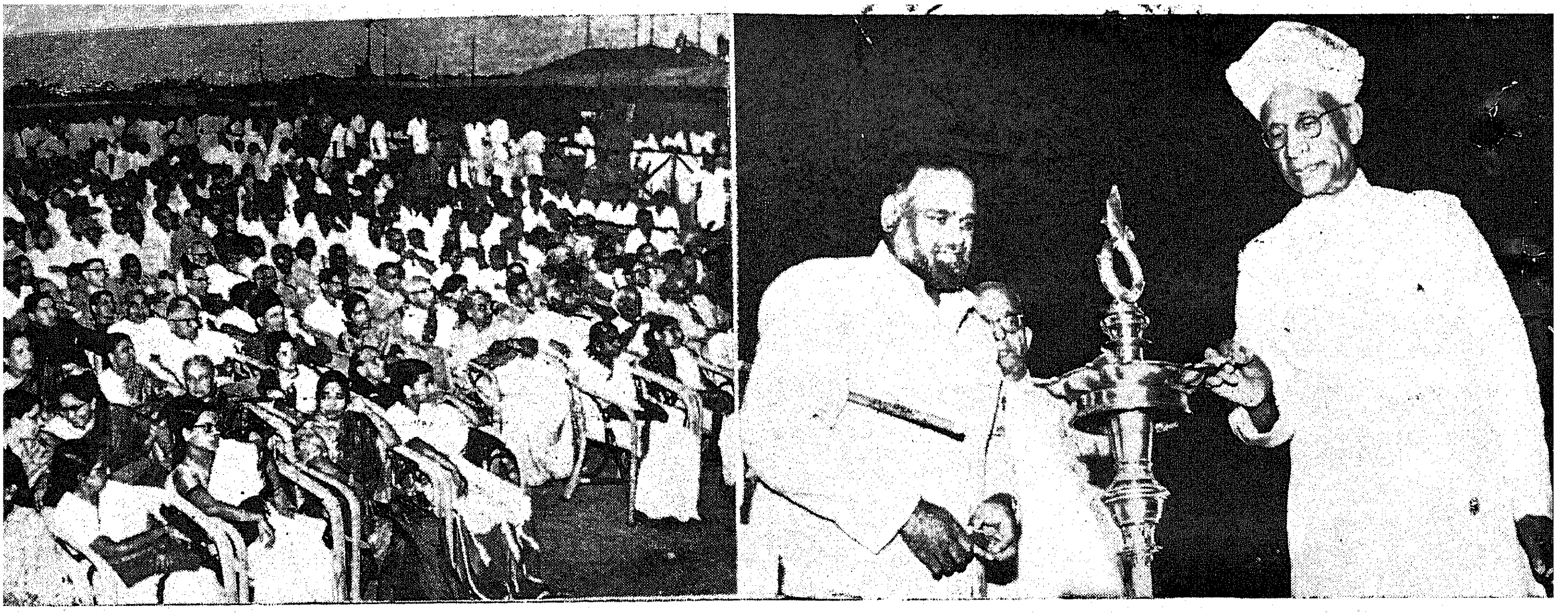
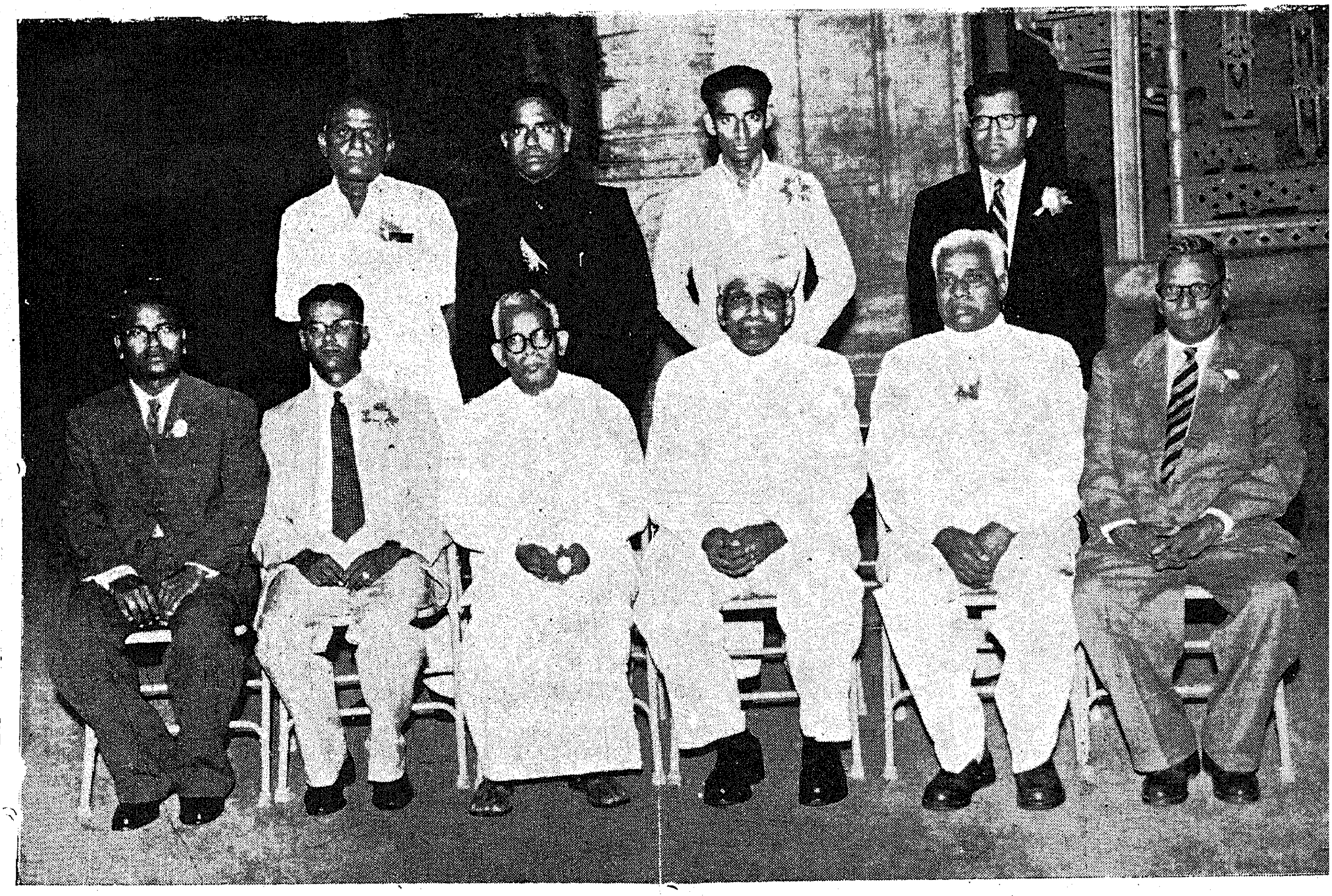


The Red Cross Centenary Exhibition was inaugurated by Dr. Radhakrishnan, Vice President of the Republic.



The State Veterinary Council was inaugurated by Dr. A. L. Mudaliar, Vice-Chancellor, Madras University. Sri M. Bakthavatsalam, Minister for Home and Agriculture, presided. This photo shows the Members of the Council.

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MADRAS

" We Seek to Serve and Not to Compete "

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This month's Cover:

The role of small industries in a developing economy cannot be overemphasised. The development of small industries, because of their labour intensive character, is the first and easiest step for a predominantly agricultural economy in its march towards industrialisation. In the years ahead when heavy industries come to be established in Madras, these small industries will serve as well-knit feeder units. Over the last three years, Madras State has spent the entire 5-year allotment under the Plan, in establishing a variety of small industries. On the cover of this month are found two views of the machines set up in the units of the Industrial Estate at Guindy and a photo of some of the products of the Wood Work Unit.

MADRAS information

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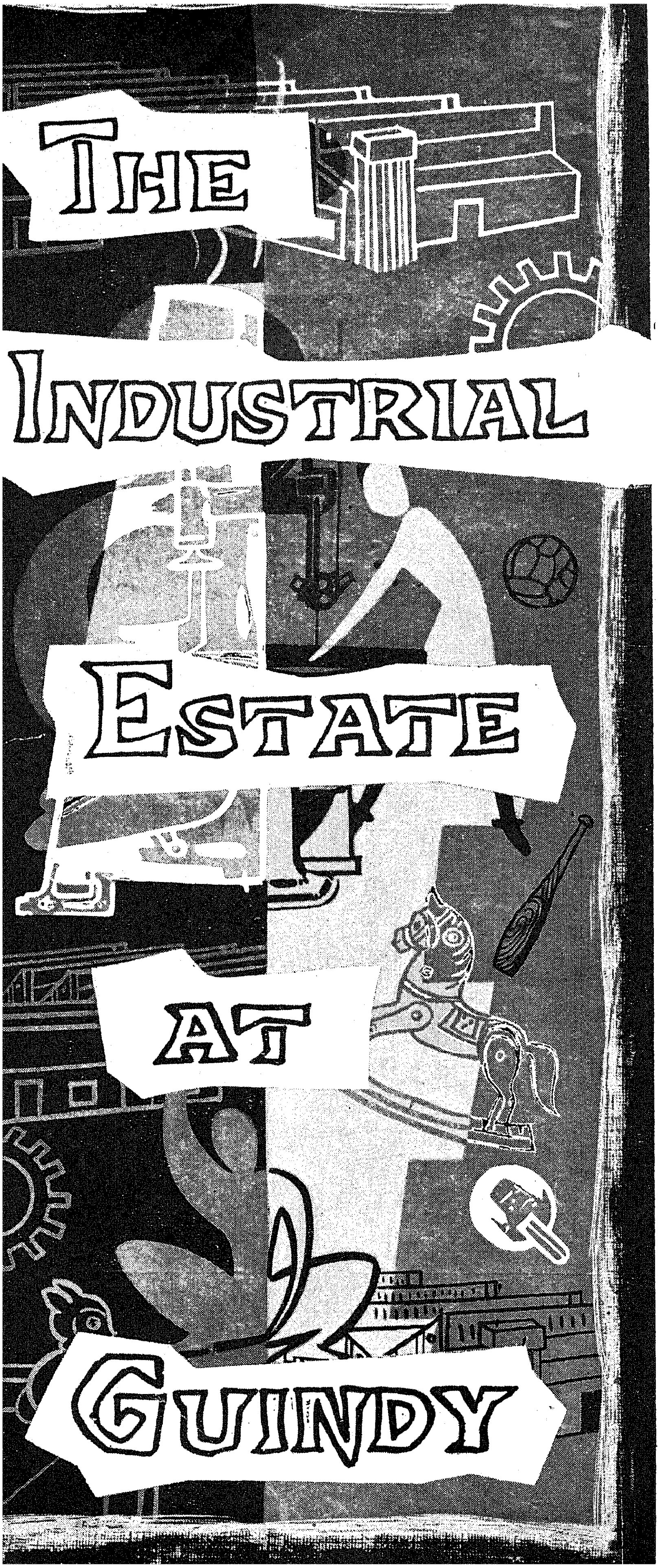


Just a year ago the first phase of establishment of the Industrial Estate and the Government Service Units was inaugurated. At that time, 52 Factory Units besides several Government Service, Production and Training Centres had been completed and made available for industrialists and some of them had started production. As there was further demand for factory space after all the 52 Units had been effectively occupied, steps were taken to acquire additional land and construct more Factory Units. Twenty-six additional Units have so far been completed and they have also been allotted during December 1958. The new allottees have occupied them promptly and started the erection of their machinery and some have already gone into production. Since there is a scramble for space in the Industrial Estate, the construction of the remaining 19 Units envisaged in the scheme is being proceeded with and it is hoped that by the middle of 1959, they will also be completed and allotted to some of the pending applicants. With these, this scheme for providing 97 Factory Units planned in an area of about 70 acres would be complete. In order to meet the demand for accommodation the acquisition of a further extent of 150 acres of land adjoining this Estate for future development is under active consideration.

As a part of the Estate programme, essential services such as electricity, water-supply, canteen, first-aid post, rest shed for workers and post office had already been provided and arrangements are now under way for the construction of Information Centre and administrative block, fire station, bank, transport office, recreation centres, etc. There have been some criticisms that in some of the Industrial Estates in the country, more money than was necessary had been spent on offices, garages and other constructions not directly related to the production of goods and that many of the Factory Units are either lying vacant or have been filled in with common place industries which do not really need any special encouragement or assistance from Government. Particular care has been taken from the very beginning to see that the factory buildings intended for housing private industries with essential services and service centres came up first and the secondary services such as administrative block, etc., are taken up only after the Estate is well established and that expenditure on them is regulated with a view to economy consistent with efficiency. Special care has also been taken to screen the numerous applications for allotment of factory space after physical inspection wherever necessary and select only such of those manufacturing industries whose products would lead to reduction in imports or increase in exports or meeting the increasing local demands. The more important items of manufacture by the new allottees occupied by 26 Factory Units inaugurated on 14th February 1959, cover H.T. accessories electric motors, railway parts requiring Orgon Arc Welding, bolts and nuts, wire mesh, drop forgings, machine screws, copper conductors, P.V.C. wires and cables, lamp shades, thin walled engine bearings, typewriter parts,

SRI T. K. PALANIAPPAN, I.A.S.,
Director of Industries and Commerce.

diesel engine parts, etc. Special attention has been paid to locate in this Estate as many as possible of the Government Common Facility, Training and Production Units in order to give real service and assistance to the small industries that are housed here. Two such Units, the Pressure Die-Casting Unit and the Common Lease Shop were inaugurated on 14th February 1959.

Pressure Die-Casting Unit.

The Government Pressure Die-Casting Unit has been set up at a cost of Rs. 9.69 lakhs with a view to serve as a model and also to meet a part of the requirements of the industry and trade. Die-casting is being adopted to the production, in bulk, of small and medium size parts where accuracy and uniformity are essential. Though this new technique of die-casting is daily assuming greater importance in the Industrial field, no appreciable progress has so far been made in our State in this direction. With improvements that have been made in die-casting alloys and die-casting machines and materials, it is now possible to use die-casting for many purposes in machine construction with considerable reduction in cost. Three machines with the capacities of 60 tons locking pressure, 100 tons and 200 tons each have been installed in the Unit.

Common Lease Shop.

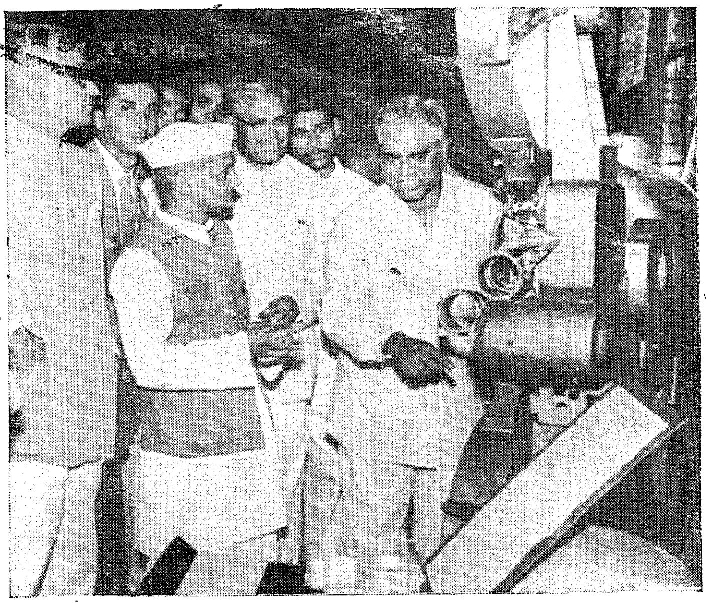
The Common Lease Shop is intended to afford facilities for hiring out highly specialised machines to the needy small industrialists in this Estate for short periods in order to encourage them in certain specialised lines. We are very grateful to the Technical Co-operation Mission for having made a generous gift of 36 modern and costly machines. The sum of Rs. 2.35 lakhs we have provided for this scheme is for meeting freight and handling charges for bringing the machines from the U.S., for the purchase of additional minor tools and fittings, the construction of a building and meeting pay and allowances of the technical staff to run the shop. The machines in this Common Lease Shop include tool room machines, foundry equipment, general purpose machines and specially heavy machines suitable for making railway parts, etc.

Besides these two units, it is proposed to set up a Forging shop for which the machinery has already arrived and in another building which is nearing completion, an up to date foundry. Appreciating the needs of the labour employed in the factories housed here, it is proposed to put up 160 tenements under the Industrial Housing Scheme, at a total cost of Rs. 5.60 lakhs and out of these 80 have been completed and provided with necessary amenities and are being allotted for occupation. Each of these tenements constructed with cement hollow blocks costs Rs. 3,500 including the cost of land and development.

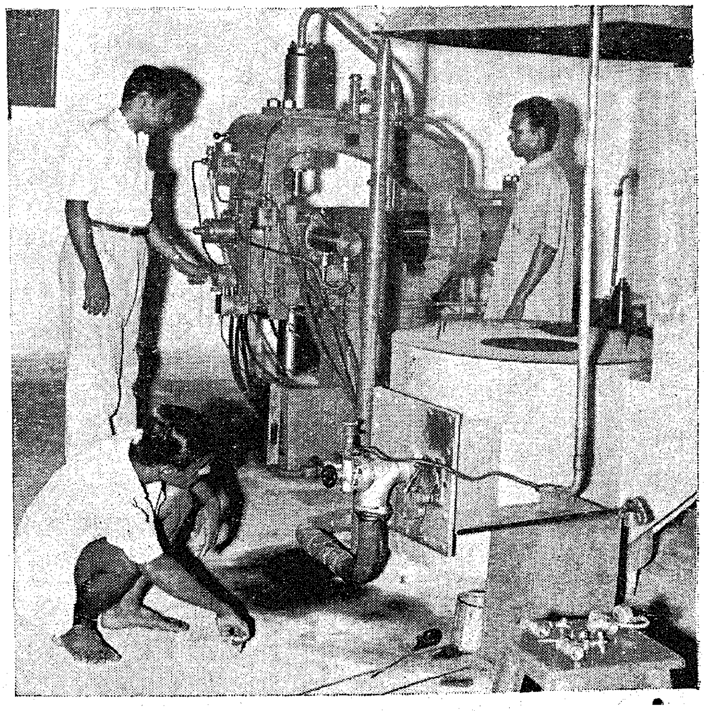
Industrial Training Centre.

The Government of India, in the Labour Ministry and the State Government have been paying special attention to the development of a number of Industrial Training Institutes in order to meet the growing demand for technical personnel to the craftsmen level. The Training Centre at Thyagaroyanagar was functioning in a rented building. Now it has been provided with permanent buildings and work sheds and additional equipment at a cost of Rs. 10.55 lakhs. The permanent buildings have been put up in the Estate campus so that the trainees could grow up in a proper industrial and technological atmosphere. An additional 112 seats have now been provided and also the scheme of evening classes has been implemented for training per year 200 workmen actually employed in industries. A Servicing

(*Continued on page* 13)



The Union Minister for Industries, Sri Lal Bahadur Sastri, inspecting a machine in the Common Lease shop.



A Hydraulic Hammer.

Industrial Estates and Industrialisation

SRI C. V. V. CHETTI,
Administrative Officer, Industrial-Estate, Guindy.

During the Second Plan period, with its emphasis on the industrialization of India, various steps have been taken to develop Large Scale, Medium Scale, Small Scale, Cottage and Village Industries. The Industrial Estates have their bearing mainly on the development of small scale industries.

While it cannot be denied that there should be large scale industries in any country for its advancement industrially, the importance of small scale industry either as an ancillary to large scale industry or as an entity by itself cannot be overstated. In many of the industrially advanced countries, it is realized that for the proper development and expansion of large scale industry, the assistance of small scale industry is very necessary; nay, one may even go a step further and say that the wholesome development and growth of any large scale industry is linked up inseparably with the flourishing of several small scale industries which are der invaluable assistance to the large scale industries. For any large scale industry to manufacture all the items it requires from beginning to end will not only mean sinking of an enormous amount of capital, but taking on itself all the other problems inevitably linked up in such an all-inclusive undertaking. For instance, there is the problem of a place for the construction of a plant of enormous size, the problem of obtaining the right type of skilled and supervisory labour, the problem of obtaining raw material, not to speak of the fact that in such a giant organization it will be difficult to carry out extensive research in any particular field for the development of the product. These factors have rightly weighed with the industrialists abroad and the development of a large number of small scale industries each of which concentrates mainly on the production of just one or a few items of the components required for the large scale industrialists, has had many salutory effects such as a higher degree of specialization and perfection of the product with the attendant benefits in price, quality and quantity. It enables a small entrepreneur to set up a business without fear of much competition and evince a degree of enthusiasm which it will not be possible for an organization with several irons in the fire to have. On the basis of results like these, a place for small scale industry has indisputably been established in the industrial activity of any progressive country. These facts have been realized and accepted by our country also, resulting in according a fairly important place for the development of small scale industries in the Second Five-Year Plan.

The idea of the Industrial Estates appears to have originated in the United Kingdom even before the Second World War. This step appears to have been taken there in order to pump new like into industrially depressed or distressed areas, where the percentage of unemployment was high. There are several ways in which assistance can be given to the small scale industries. One of such ways is by the establishment of the Industrial Estates. It is only during the last year or so, that the public in India have been hearing of the Industrial Estates. Perhaps before that period most people may not have been aware of any estates other than the Estates for Tea, Coffee and Cardamom, etc. Like the estates for agricultural products which are fairly extensive in area, the Industrial Estate also has to be extensive in order to accommodate a large number of industrial units.

The Industrial Estates in India are located in the following places : Delhi, Allahabad, Agra, Kalyani, Rajkot, Mysore, Gauhati, Visakhapatnam, Jaipur, Quilon, Trichur, Madras, Virudhunagar, Hyderabad, etc.

A small scale industry has been defined by the Government of India as an industry with an investment not exceeding Rs. 5 lakhs, and employing 50 persons with power or 100 persons without power. Several such industries and even smaller ones have grown up all over India in a quite a surprising manner at places or areas which are quite unorthodox, unhealthy and anything but suitable for the proper growth and progress of such an industry. In starting such industries no thought appears to have been given either for the establishment of the industry on proper well-thought-out lines or for its subsequent development and expansion. If one examines such an undertaking, it will not be difficult to find that the industry has not been properly planned and organized whichever angle one may like to view it from. To build up an industrially advanced India on such a foundation of bad planning will mean a very hard path to progress. It is here that the Industrial Estates have come to play a very important part and for which there can be no substitute. The object of starting these Industrial Estates is partly to ween away such industries which have grown up in a very slipshod manner to more ideal conditions which will be favourable for their healthy growth. Also for the small industrialists, the problem of finding finance, in spite of the fact that the State Government, the Union Government and various other financial institutions have come forward offering their liberal unstinted aid, is still a very stupendous one. The Industrial Estates, which have been set up by the various State Governments in the states with the assistance of the Central Government have overcome to a very large extent the initial difficulties of the small

industrialists, in finding a place to start their workshop, in finding the finance to purchase the land and to put up the buildings, in having to run about and obtain licences for putting up buildings and getting approval of Inspector of Factories or various other departments, to get the industry started. All these take plenty of time and energy and for the small industrialist, with no big organization of his own, and will mean such an enormous drain on his personal time and energy, that perhaps, after attending to all these items of work, very little time or energy will be left for doing other and equally important items of work connected with his undertaking.

Several considerations have to be taken into account before selecting a site suitable for the Industrial Estate. A few of these are :

The availability of power supply, availability of water supply nearness to industrial areas, existence of good roads, or feasibility of making good roads, facilities for procuring raw materials, skilled labour, etc.

In view of the fact that the success and popularity of the Industrial Estate, will depend to a very large extent on the proper selection of the site, it is necessary that great thought and care should be bestowed on these items. Next to selection of sites, are planning of buildings, roads, etc. As the Industrial Estate would contain several types of industries, in order to make it popular, the requirements of the various types of industrialists have to be considered. It will also be necessary to comply with the provisions of Factories Act and Rules. Overcrowding and the development of industry in an unhealthy manner have to be prevented by the proper planning of these estates.

It will be easy to justify the establishment of these Industrial Estates from various points of view. First and foremost, as has been already stated, the initial worry of finding the capital and the work involved in the purchase of land, construction of buildings, etc., are substantial savings to the industrialists. The industrialists have an advantage of being grouped together in a common place, where several types of industries are located. It will, therefore, be possible for them to get certain items of work done, for which they have themselves no facilities and there will thus be the saving of time and labour in finding out a suitable place for carrying out such processes. In short, there will be a pooling of resources. It leads to better understanding and co-operation between the various industrialists, resulting in cutting out unhealthy and cut-throat competition. Most of Industrial Estates are bound to have facilities such as a Post Office, a telephone system, a banking institution, a canteen, a fire station, a hospital, etc. They could also have a store from which supply of raw materials and other essential requirements could be had. Service centres which have very costly machinery installed in them, which will be beyond the reach of an ordinary industrialist, could also be started for rendering manufacturing facilities for the industrialists. These are a few of the advantages that one could visualize as possible. It may be that, as time goes on, several other facilities and advantages could be worked out by the mutual co-operation of the various industrialists and the State Government.

Like all new things, which take some time to catch on, with the exception of a few places, where these Estates have been very popular, a lot may have to be done to educate the public in the advantages of these Industrial Estates and their ultimate good to the Nation. In the long run, however, there can be no doubt whatsoever as to the success, the popularity and their contribution to the industrialization of the country.

Checking Posts under Sales Tax Act

The Government have directed the setting up of ten checking posts under the powers accruing from the Madras General Sales Tax Act, 1959, in the following places: at Red Hills on the Northern Trunk Road; at Kadaperi-Tambaram, Chingleput district, on the Southern Trunk Road; at Poonamallee on the Western Trunk Road; at Ganganamkuppam, Pondicherry-Cuddalore border; at Marthandichavadi on the Tindivanam-Pondicherry road; at Gangarampalayam on the Villupuram-Pondicherry road; at Kandaigoundanchavadi, Coimbatore district, on the Madras-Calicut road; at Ranipet on the Bangalore-Madras road; also at Hosur on the same road and at Katpadi on the Chittoor-Cuddalore road. By a notification appearing in the 25th March issue of the *Fort St. George Gazette,* the date 1st April 1959 has been fixed as the date for the new Sales Tax Act to come into force and the delegation of assessing and examining powers among the officers of the Commercial Taxes Department have been published in detail.

Listing and Preservation of Historical Records

The Regional Committee of the Indian Historical Records Commission has decided to compile a list of manuscript records which are of historical value in the possession of some of the libraries of Madras State.

The Committee is particularly interested in locating and listing valuable manuscript records of historical importance in the possession of individuals and institutions, and if need be, in arranging for their preservation from decay and deterioration from natural causes. The Committee would also arrange for their mending, if necessary, and for their preservation at the Madras Record Office, should the owners of the records be willing to part with them.

Further information on the subject might be elicited from the Convener, Regional Committee for Survey of Historical Records, Presidency College, Madras-5.

Some Aspects of Factory Inspection

Sri V. BALASUNDRAM, I.A.S..

Up to the end of the 19th century, there was no State control over the conditions of employment in any industrial concern. The employers were free to do what they liked with the result that labour was exploited to the fullest extent possible. Hours of work were inordinately excessive, rates of wages unduly low and other conditions of employment as bad as they possibly could be. With the growth of the industrial population and the development of industries, the need for regulating the conditions of work in factories was first recognized. The first Indian Factories Act was passed in 1881. With the increase in the number of factories, various amendments were subsequently made to the Factories Act. After the formation of the International Labour Organization, its conventions became the guiding factors for improving the working conditions in factories and other industrial establishments. The new reforms introduced by the Government of India Act, 1935, established provincial autonomy in the provinces. The Indian National Congress which won the elections with large majority initiated a policy with a view to securing to the industrial workers a decent standard of living, hours of work and conditions of labour in conformity, as far as the economic conditions in the country permitted, with the international standards, suitable machinery for the settlement of disputes between employers and workmen, protection against the economic consequences during sickness and unemployment and the right of workers to form unions and to strike for the protection of their interests. This policy was implemented and several legislative measures for the protection and welfare of workmen and for regulating their working conditions were passed from time to time. With the advent of Independence, labour welfare has been fully recognized as an integral part of social welfare and the above policy has been further elaborated and enshrined as the directive principles of State policy in the Indian Constitution.

The various Labour laws now cover and afford protection to a large majority of industrial population in this State. One of the important labour legislations is the Factories Act, 1948, which seeks to regulate labour in factories with particular reference to their health, safety and welfare.

Industrial Health.

As regards Industrial Health, the following summary of an analysis by Dr. E. R. A. Merryweather, a senior Medical Inspector of Factories in the United Kingdom will be of interest.

Industrial health, if it is to be approached in a scientific way should be regarded as a composite subject comprising the health, safety and welfare of man in his working environment. Problems of industrial health therefore require for their solution services of Doctors, Engineers, Chemists, Physicists, Psychologists, Welfare and Personal Experts, Dieticians and other specialists. It is very necessary to study the individual environment of every worker not only during day but also during nights. The Factories Act and the rules thereunder lay down guiding principles in regard to the health of the industrial workers. A personal and close study of every aspect of health conditions in local factories is a condition precedent to a proper understanding of the problems of industrial health. Such a special knowledge combined with close observation will go a long way in helping those concerned in successfully and satisfactorily solving industrial health problems.

Approached from this angle an average factory has (1) buildings, (2) machinery, (3) electrical gear, (4) materials used and manipulated and (5) personnel.

Under the first item, viz., buildings, the main points to be observed are (1) cleanliness, (2) space, (3) general ventilation, (4) lighting, (5) drainage and floors, (6) sanitary conveniences, (7) washing accommodation and (8) cloak room, mess rooms, etc.

Machinery and electrical gear cause most frequently accidents in factories and the prevention of such accidents is discussed below under "Safety Provisions".

Materials used and manipulated are responsible for health risks in industry. Although the recognition of medical risks in industry is obvious, it takes a long time to realize the effects of some dangerous poisons, dusts, etc., on the worker, in view of the fact that such effects are insidious and slow in action. Substances vary much in their capacity in causing ill-health and in their mode of action and some give warnings before they strike and others none at all. However, by close study and observation certain risks can be identified and the possibilities of others noted. Materials used and manipulated in factories may be either solids, liquids or gases. They may produce dusts, fumes, gas and rays which may be inhaled, swallowed, absorbed by or attack the skin and cause harmful effects.

The personnel, i.e., the workers in the factory are the most important and indispensable component. Since a worker spends about one-third of his life in his working environment, the points discussed above have a continuing and cumulative effect on his life and consequently on the quality and efficiency of his work. Dust, gas, fumes, abnormal temperature, bad lighting and other influences exert their maximum effects on the workers in such circumstances. The points to be noted in a factory are therefore (1) general environment of the worker and any general influence which will militate

against his optimum efficiency and well-being, (2) special environments of the workers and any exposure of them normally or by accident, (3) dusts, fumes, gas and other deleterious influences, and (4) the nature of these deleterious factors and their potentialities for harm and their mode of action.

Remedial measures should include a standard of protection which should be sufficient to prevent disablement due to the work during an average working life-time and prevent any shortening of the expectation of life from the same cause.

In accordance with these criteria, proper and adequate special measures of protection and prevention in addition to the general measures mentioned previously such as adequate space, general ventilation, lighting, etc., should be taken. Such special measures for protection should include (1) substitution of innocuous materials for noxious, (2) enclosure and mechanization, (3) regularized exhaust ventilation, (4) vacuum cleaning or wet cleaning, (5) smooth non-absorptive floors and surfaces, (6) avoidance of extremes of temperatures, (7) prohibition of food and smoking in work-rooms, (8) protective clothing including protection of the eyes, (9) special first aid measures, (10) respirators, breathing apparatus, (11) periodical medical examination, (12) alternative employment and restriction of length of continuous exposure to the risks, (13) exclusion of women and young persons from work in certain process and (14) education of the personnel (especially the young workers).

Safety Provisions.

The prevention of accidents in factories is of vital importance because they interfere with production, bring pain and suffering to the worker and his family, waste man-power, spoil material and cause disorganization and waste of time. Various provisions (sections 21 to 41 and rules thereunder) exist in the Factories Act, 1948, for safeguarding machinery and ensuring safety for the workers. Accidents may be classified as machinery accidents and non-machinery accidents.

Machinery accidents may be due to failure of the plant itself, by the breakdown of machinery, explosion of boilers, etc., or it may be due to the general body of the machinery in which workers are caught and trapped from which they come off worse. In the second case the machinery itself does not break down but the construction and nature of the machinery are such that there is danger of workers being caught and entangled in the process.

Non-machinery accidents occur in the ordinary normal human ways while machinery accidents are mutilating accidents. Non-machinery accidents are minor ones such as falls on the heads, hits by falling articles, injuries in handling hard tools, stepping on striking objects, etc. But such accidents, though minor in nature, may lead to a large number of fatal cases. Apart from proper training, protective clothing, goggles, screen, helmets to protect eyes and face, gloves and hand-protectors, protective boots and steel caps are some of the things used by workers for safety. Optimum temperature is also suitably regulated to prevent accidents in the case of light workers as well as heavy workers. It is considered that delicate colouring of machinery parts, e.g., pipe line, etc., and the walls and ceiling is a good method to prevent accidents. A psychological method is to train the workers and make them determined not to get into accidents. Posters which are attractive and humorous, not gruesome, help the workers to realize the dangers of accidents. Such posters should be semi-technical and snappy and should be positive. Some of the devices for safeguarding machinery are (1) fixed or adjustable guards, (2) interlocking devices, (3) sweep-away guards, (4) instantaneous stop mechanism, (5) double hand-controls, (6) reversing mechanism, (7) automatic or remote feeding system, (8) mechanical appliances to replace any operations, (9) clutches, and (10) safety devices in the designing of the machine itself.

A successful campaign against accidents in factories should comprise (1) support of management, (2) centering safety work in one responsible person, (3) establishment of safety committees, (4) inspections and investigations and (5) propaganda and statistics.

In spite of the fact that considerable improvement has been made in safeguarding machinery by means of statutory regulations, administrative action, greater interest on the part of employers and manufacturers, accidents are still common in factories. Legislation alone cannot solve the problem; but safety organizations within the industry and in each factory set up in co-operation with employers and workers can go a long way in preventing accidents. A safety officer whose duty it will be to enlist co-operation of managers and foremen, to educate and train workers in safety, to investigate dangerous practices and unguarded parts of the machinery, to collect statistics of accidents and generally to be in touch with safety committees, is very necessary in every factory. He should be assisted by a safety committee which should be set up in each factory and should consist of representatives of employers and workers (representing various departments in the factory).

The function of a safety committee is to create and maintain interest in the workers in the matter of preventing accidents. The committee should investigate accidents and see that dangerous parts of machinery are guarded; that machinery is kept in good condition always and give judicious publicity of accident cases, etc., by display of posters and by collecting and maintaining reliable statistics about accidents. Atmospheric conditions and bad lighting and the indifference and ignorance of the workers may also cause accidents. One of the most important items of work that should be done by Factory Inspectors is the prevention and investigation of accidents and prosecution in accident cases.

Labour Welfare.

The importance of labour welfare cannot be too strongly emphasized. While labour welfare generally

refers to all matters affecting health, safety, comfort and well-being of workers, it is now particularly associated not with those arrangements which are specially directed towards the problem of accidents and the establishment of healthy working conditions in factories but with those measures intended to secure comfort and general well-being of workers.

The problems of industrial fatigue with its bearing on production should be subjected to scientific research. Legislative measures such as the Factories Act, etc., were passed to improve the welfare conditions. Joint consultative machinery like the Works Committees were established in many factories. The appointment of welfare officers in important individual factories has contributed towards the improvement of labour welfare in those factories.

Some of the important items of work that should be attended to in order to ensure labour welfare in factories are as follows:—

Drinking water.—Wholesome drinking water from the public main or other approved source should be provided for factory workers at accessible points. The water should be in clean vessels with sufficient number of cups or glasses with which to drink and there should be facilities for washing the cups, etc., in drinking water. A healthy and convenient method is to arrange for water to be delivered in an upward jet.

Washing facilities.—Washing facilities should include soap (preferably in the form of liquid, powder or jelly) and towels or other means of cleaning or drying, e.g., hot air driers. Circular washing fountains with water from an overhead tank flowing in jets from a central pipe controlled by mechanical means will enable a number of persons to wash at the same time. Proper drainage arrangements should be made for the removal of dirty water.

Baths.—Baths should be provided in some dangerous trades like chemical works, lead works, oil-cake mills and sugar factories. Soaps, preferably in tabloid forms, and clean towels are essential. Foot baths are necessary particularly in cotton textile factories in view of the fact that workers in those factories do a lot of walking and standing in dirt and dust and hot floors.

Cloak room facilities.—Cloak room facilities should include a separate peg or locker (with the name of the worker and his work number noted) for the worker, space for changing, provision for drying especially in wet weather, the whole cloak room being kept clean, well-ventilated and lighted.

Sitting facilities.—These are essential especially for women and girls working in factories for taking advantage of opportunities for resting. The need for sitting facilities is felt especially in cotton textile factories where space is limited. Several kinds of seats can

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Fort St. George, MADRAS-9.

be conveniently provided such as canvass folding seats, strap seats, tip-up seats and wooden seat, which may serve as box also.

First Aid.—The benefits of effective first aid service for industrial workers are obvious. Apart from alleviating suffering, the workers who meet with slight accidents are enabled to return to work almost immediately in comfort and with a sense of security and the minor accidents are prevented from developing into serious injuries. The first aid box or cupboard should be in readily accessible places. A qualified person should be in charge of first aid. A regular hospital service with trained medical men or nurse is common in the factories in industrially advanced countries.

Protective clothing.—The supply of protective clothing is of vital importance. Apart from preventing the workers' clothes from becoming soiled, it should protect them from excessive dirt, acids and other dangerous solutions. The protective clothing should be designed according to the nature of work done. It should, however, be light and pleasant and capable of being easily washed.

Mess rooms and canteens.—It is undesirable to allow workers to have their meals in the workspot and amidst machinery, materials, dust, etc. Separate and suitable mess rooms, equipped with necessary furniture, drinking and washing facilities should be provided. Canteens should be generally well-equipped and should serve wholesome hot meals at reasonable rates.

Creches.—With a view to enabling women workers with children to attend to their work without being worried by children, creches should be provided in factories where women workers are employed. A trained nurse should be generally in charge of creches and a high standard should be maintained in not only affording general comfort to children but also in the matter of feeding them and generally attending to their needs and requirements.

Recreational facilities.—Adequate amenities should be provided for the recreation and entertainment of the workers. The amenities should include music, concerts, radio equipment, indoor and outdoor games, periodical excursions and other cultural activities.

Welfare of Ex-Servicemen

As Army, Navy and Air Force have become a permanent feature of the country, the Government decided to place the Soldiers', Sailors' and Airmen's Boards on a permanent footing as otherwise, the cause of the ex-Servicemen, their dependants and the families of serving personnel would suffer a great deal. Ex-Services Centres built at Cuddalore, Vellore, Tanjore, Tirunelveli and Coimbatore soon after the last war, serve as focul centres of welfare activities of the District Soldiers', Sailors' and Airmen's Boards. The centres afford rest and recreation, besides serving as a venue for meetings, conferences and rallies conducted for the Ex-Servicemen. Besides, these five District Ex-Services Centres, a Soldiers' Club has been constructed at Krishnagiri, Salem district. As these centres have been of great use to the Ex-Services personnel and to the visiting Services personnel, the Government have decided to construct a few more centres at Srivilliputhur, Salem and Tiruchirappalli at a cost of Rs. 1.20 lakhs, out of the balance of War Fund collections available with the District Collectors. The construction of the centre at Salem has already commenced and that of the centres at Srivilliputhur and Tiruchirappalli will be taken up shortly.

An Ex-Services Centre for the Madras City has been a long-felt need, as a number of Ex-Servicemen of the mufassal come to the City for various purposes and are stranded for the reason that there is no place of shelter for them. The Government, therefore, ordered the diversion of a sum of Rs. 75,000 from the surplus War Fund collections in the districts of South Arcot, Madurai and Tirunelveli for the construction of an Ex-Services Centre in the City of Madras. A sub-committee has been constituted for expediting the construction of the centre.

As the Ex-Servicemen are drifting away from one another due to force of circumstances, the Government are exploring the possibilities of holding rallies for Ex-Servicemen in each district with the view of bringing them together and availing of this occasion to disseminate information regarding their welfare and suggest to them how best they can help themselves in seeking assistance through District Soldiers', Sailors' and Airmen's Boards. It is hoped that this way of 'getting together' will promote a healthy understanding among the Ex-Servicemen who have a great influence on the environs in which they live."

The Secretary of the Madras State Soldiers', Sailors' and Airmen's Board, Sri D. D. Anugraham, then presented his report for the year 1958 which, among other things, stressed the fact that 7,243 Ex-Servicemen were enrolled on their register. The City Board was able to induce donations to the tune of Rs. 31,500 during the year. The State Board obtained hospital treatment for 68 tuberculosis cases, 47 leprosy cases and 363 other cases among indigent Ex-Servicemen in 1958.

[Excerpts from the speech of Sri R. Venkataraman, Minister in charge of Ex-Servicemen at the 30th Half-yearly meeting of the Madras Soldiers', Sailors' and Airmen's Board held on Wednesday forenoon in the Cabinet Room, Secretariat.]

3

Hand-Tools Service Centre

S. BALASUNDER,
General Superintendent, Hand-Tools Unit.

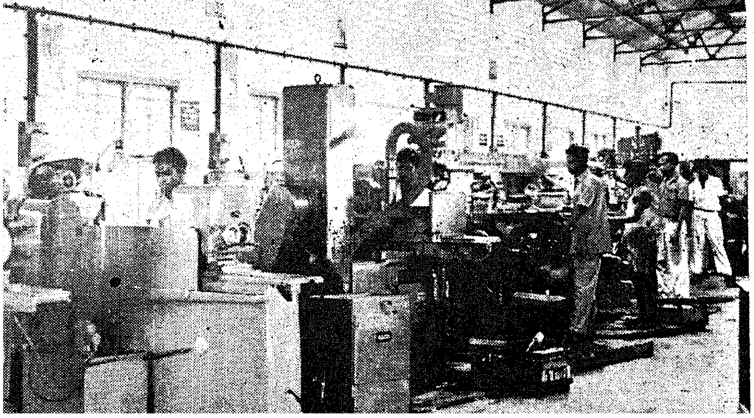
Among the numerous buildings at the Guindy Industrial Estate stands the Hand-Tools Unit which is the Key industry for the development of many modern manufacturing Industries. This is one of the series of Common Service Centres started by the Department of Industries and Commerce under the Second Five-Year Plan. Many specialists contribute to the moulding of a modern industry. Research Engineer brings forth new ideas. Design Engineers develop ideas into workable devices. After a product has been approved, the Production Engineer is responsible for furnishing the plans for production and the physical means for executing them. This Service Centre offers a unique combination of services which was hitherto beyond the reach of Industrialists in the small scale sector. As small industries cannot afford to buy costly special purpose machines, this unit offers the service of such machines to industrialists. The Hand-Tools Service Unit comprises of two major sections:—

1. The Tool Room.
2. Heat Treatment and Forge Shop.

The Tool Room.

The growth of industry has necessitated profound changes in the quality and precision of manufactured goods. It is said that even as late as the 16th Century, the legal definition of "*the foot*" in Germany was the average length of the left foot of 16 men as they emerged from Church on a Sunday! The development of entire new industries are based absolutely on the ability to achieve precision in mass production which has to be maintained in the neighbourhood of 1|1000 of an inch. Manufacturing process needs specialised tools, jigs and fixtures in addition to the standard machine tools available in production departments.

Precision Grinding Machines



A 'Jig' holds the component securely and at the same time guides the cutting tool. It may be small and easily manipulated by hand; or heavy and clamped to the machine table. A 'fixture' holds the component firmly in position during the machining or similar operation but does not guide the tools. These devices are intended to make duplicate parts and interchangeable work at a reduced cost. The use of jigs and fixtures practically does away with the fitting by cut and try methods and permits the employment of unskilled operator as the jig is designed "*fool-proof*".

The Tool Room which is an indispensable shop in the modern manufacturing process provides the following for industries :—

1. Cutting Tools.
2. Special type machine tools.
3. Jigs and Fixtures.
4. Gauges.
5. Dies for Sheet Metal.
6. Dies for Forging.
7. Dies for Metal Castings.
8. Pattern for Permanent Moulds.

The following machinery are used for machining parts to planned dimensions in this shop :—

1. Tool and Cutter Grinder (Swiss Make).
2. Cylindrical Grinder (German Make).
3. Surface Grinder (English Make).
4. Turret Milling (Italian Make).
5. Universal Milling (Russian Make).
6. Shaping machines (Italian and Indian Makes).
7. Jig Boring Machine (Swiss Make).
8. Hydro-Copying Milling (Swiss Make).
9. Lathe (Indian Make).

A special feature of this tool room is the installation of a Hydro-Copying Milling Machine (costing nearly Rs. 2 lakhs) nad the Jig Boring Machine (costing nearly Rs. 1 lakh). In the hydro-copying machine, a master pattern or die can be reproduced in steel by a special adaptation of a vertical Milling device. The Jig Boring Machine can give an accuracy of 0.00004 of an inch (1|1000 of a milli-meter). This latest model jig boring machine has been made by the *Societe Genevoise* whose machines have a worldwide reputation for accuracy. This machine is kept in an air-conditioned room to maintain its accuracy.

The grinding machines utilize an abrasive wheel revolving at high speed to cut material. It is the only method of cutting such materials as hardened steel. It produces finishes that are extremely smooth and accurate with little pressure. Cylindrical grinders are precision grinders for round surfaces. Surface grinders are meant for plane surfaces.

1-8 MAY 1959

Heat treatment and Forge shop.

Heat treatment of metals is the science of heating metals in suitable atmosphere to desired temperature and cooling them in the medium of air or oil or water to get the required physical properties such as hardness, toughness, etc. By manipulating the variables like temperature, atmosphere, rate of heating and cooling, quenching medium, any desired property can be imparted to the selected steel. These controls are perfected by the development of metallurgical science. Heat treatment actually existed many centuries ago in a mysterious ritual form. It may be of interest to note that the famous '*Damascus Swords*' were heated to the colour of the rising sun and were quenched by plunging them into the belly of a fat Nubian slave!

This Unit has provided the following equipment to achieve this purpose:—

1. Muffle furnaces.
2. Convection furnaces.
3. Saltbath furnaces.
4. Annealing boxes.
5. Cyanide bath.
6. Pickling tanks.
7. Tumbling machine.
8. Sand blasting equipment.

"*Salt bath*" means a bath compounded by melting one or more chemical salts to form a liquid medium for immersion of the material to be treated. The chemical nature of such baths varies according to the temperature at which they are to be used.

"*Tumbling*" is a process carried out by placing a number of articles in a round or hexagonal barrel and rotating them either by themselves or with some suitable medium.

"*Pickling*" means removal of scale from steel and cleaning by immersion in a diluted acid bath.

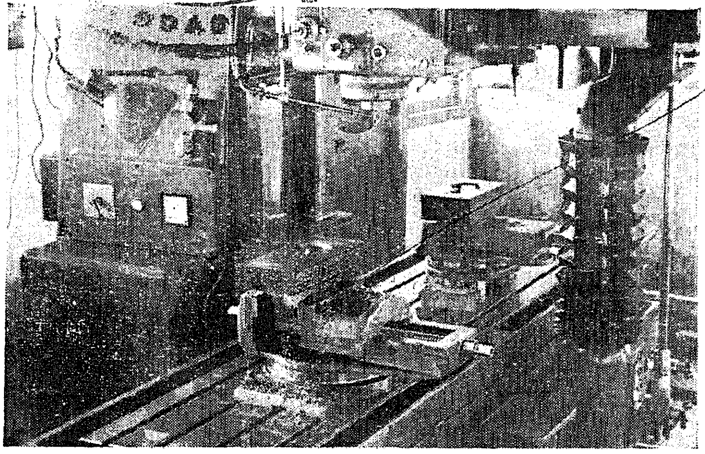
"*Sand blasting*" operation consists of blowing a jet of sand mixed with air at the article to be treated. This process removes dirt and leaves the surface smooth and polished without damaging the metal.

Forge shop.

"*Forging*" may be described briefly as the part of manipulating metals that have been heated until they are more or less plastic by means of hammering or squeezing. A forged material nearly always has better mechanical properties than a cast one, the difference being usually marked as regards toughness and impact strength. This shop is equipped with:

1. Drop Hammers (German make).
2. Pneumatic Hammers (German make).
3. Punching and Shearing Machine (German make).
4. Power Press (English make).

"*Drop forging*" when a number of forgings have to be made to the same design, the time required per piece can be reduced by making up special tools for drop forging. In this process, the finished shape of the forging is obtained by stamping a hot block of metal between an upper and a lower block of metal or die, in

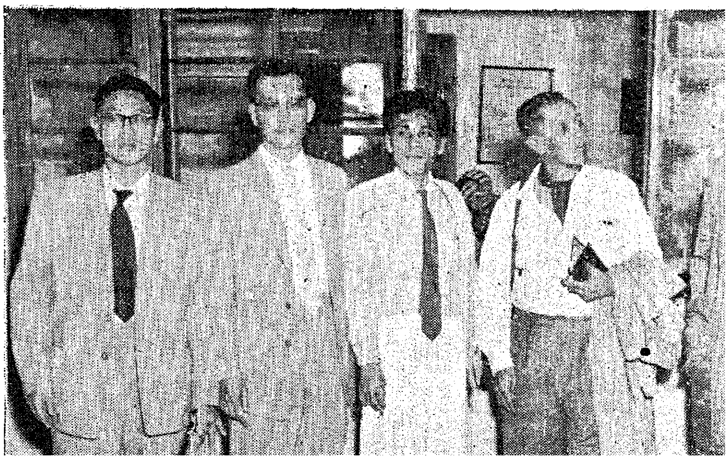


Hydro–Copying Milling Machine

each of which an impression has been formed, the combined impressions being equal in shape to the forging required. The lower die block is usually fixed and the upper one is lifted up and allowed to fall on the metal which is placed on the lower die. The operation is done on the machine called drop hammer. This shop will actually undertake production work of components in mass scale for industrialists. Many hand-tools, surgical instruments, and machine parts are the products of a forge shop.

As in many new ventures, there may be many handicaps at the initial stages due to shortage of technical personnel, raw materials and skilled operators. However, the unit is bound to surmount all these hurdles in course of time and keep up the Service work at an efficient, economic and enviable level. It is our fervent hope that Industrial Entrepreneurs from small scale sector should take the maximum benefit from this Unit. The Hand-Tool Service Centre may prove to be the beacon on the path of industrial development in the State of Madras.

A delegation of Press men from Malaya visited the City in March. Photo shows the delegates on their arrival at the Madras Airport



Pressure Die Casting Unit

Sri S. Chellasami,
General Superintendent, Pressure Die Casting Unit.

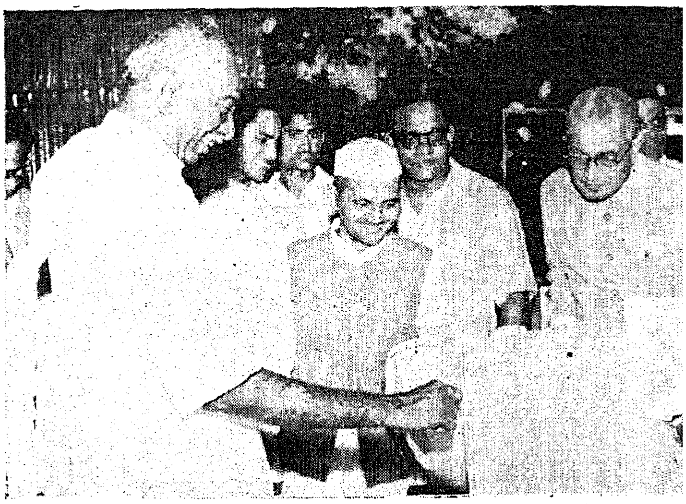
With a view to supplying the component parts required by the various Engineering Industries both in the Guindy Industrial Estate and elsewhere, Government sanction was accorded in September 1957 for the establishment of a modern and economical Pressure Die Casting Unit in the Industrial Estate, Guindy, at a total estimated cost of Rs. 9.68 lakhs. No small-scale Industrialist has so far taken to this venture, though the need is keenly felt. Die Cast parts are used in the following industries:—

(1) Automobile.
(2) Business machines.
(3) Home appliances.
(4) Electrical equipments.
(5) Toys and models, etc.

No other single fabricating technique has contributed more to the economic and industrial development and the higher standard of living of the twentieth century.

The age old method of casting molten metal is by gravity pouring into sand moulds, which have to be destroyed for removing cast part. The search for a permanent mould that could be used to produce parts in quantity started from the Middle Ages, and in the last century was evolved the process of gravity pouring of molten metal in iron moulds, constructed in two halves and opened and closed mechanically. The next logical step was to improve accuracy and appearance of cast parts by the application of pressure to force the molten metal into strong steel moulds, instead of merely relying on gravity pressure. The metal was forced into the mould by means of a piston and cylinder immersed in liquid metal. The resulting castings were observed to be close-grained, homogeneus and dense.

The first commercial applications of die casting were mainly for such items as automobile bearing, produced from tin and lead base alloys. As the process gradually became an important factor in metal fabrication, it has been adapted to other and more useful alloys having better mechanical properties, though the problems con-



The Union Minister for Industries and the Chief Minister viewing some of the products of the Pressure Die Casting Unit.

nected with the casting technique multiplied with the higher melting points of these alloys.

For producing satisfactory and structurally sound castings of the higher melting point alloys of aluminium, magnesium and copper, the cold chamber process has been developed. In this method all possibilities of alloy contamination or 'metal pick up' are completely eliminated, as the operating parts are kept relatively cool and the alloy is in contact with the plunger and the cylinder for only a short duration. A modern cold chamber machine obtained for the Industrial Estate is illustrated in photograph. It is a hydraulically operated, and self-contained unit, and completely automatic in action, the motive power being obtained from an electrically driven high pressure oil pump.

The machine consists of a fixed front plate over which is mounted the vertical shot cylinder, the sliding plate, a crosshead and an end frame all connected together by adjustable tie-rods. The power unit is housed at one end; the sliding plate, crosshead and end frame are connected together through links and pins and provide the motion for opening and closing the die. The closing pressure must be sufficient to keep the die closed while the metal is being injected into the die cavity. The various operations are briefly explained below.

The molten metal is poured into the cold chamber by a laddle. Immediately after the pouring operation, the plunger is advanced, it seals the port and forces the metal charge into the locked die under a pressure of about 60,000 pounds. There is always enough metal to more than fill the die cavity, the excess metal being in

A view of the Unit.

the form of a slug is ejected with the casting. The operations take place automatically by push-button control and in the correct sequence.

The functions of the automatic working cycle are electrically interlocked, so that one function will not begin until the previous one is satisfactorily completed. Uniformity of casting and maximum speed of operation are ensured thus. Pressures and temperatures are regulated automatically, the die remains closed for a pre-determined length of time while the cavity is being filled with molten metal, and then opened in accordance with a definite time schedule. This ensures solidification of the molten metal before the die opens, and removal of the casting immediately after solidification. If the dies are opened the casting may be distorted before the metal in the die has solidified, the casting may be distorted when it is ejected ; if allowed to remain in the die cavity after solidification, the shrinkage that occurs would severely stress the internal structure of the casting.

A smoothly working casting mechanism is not, in itself sufficient for the production of satisfactory die cast components. The other basic requirements are (1) a properly designed and constructed die of suitable heat and shock-resisting alloy steel, (2) a suitable alloy —its composition conforming to standard specifications and (3) an efficient furnace for melting of the alloy, installed close to the casting machine.

The die casting technique has the following advantages as compared with the other processes—stamping, forging, etc:—

(1) Speed of production—The number of shots possible with a modern die casting machine depends upon the material; it is high with the low-melting-point alloy and lower with the higher-melting-point alloys.

(2) Complex shapes can be made that would be difficult to obtain by the other methods.

(3) Inserts of other metals and various shapes can be used in the die casting.

(4) Thin sections can be used.

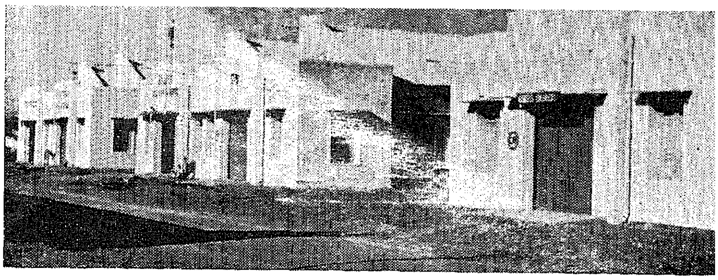
(5) Superior strength and better mechanical properties of die castings as compared to castings produced by the other methods.

(6) Die castings can be produced to closer dimensional tolerances than is possible with the other processes, resulting in a corresponding saving of machining time and materials.

(7) Die castings have a better appearance—they can be plated, painted or chemically coated after only a buffing operation; in many cases even this operation may be unnecessary.

The time factor and toll cost involved would appear to be somewhat of a disadvantage in this process. Time is required for designing and fabricating the die, trying it out and determining the best casting conditions to produce the most satisfactory castings.

It is confidently expected that this new service will give a good fillip to the Small Industries in our State and afford increased opportunities for training of our young technicians.



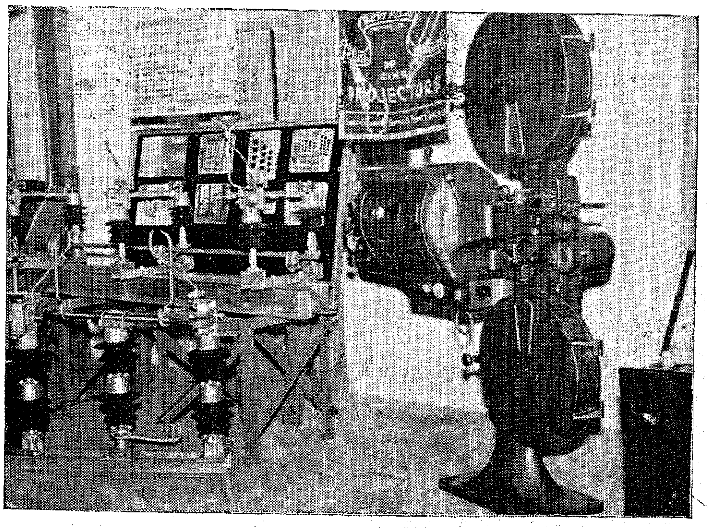
Some of the Units at the Industrial Estate.

(*Continued from page 3*)

Corporation and an Industrial Co-operative for supplying raw materials, etc., needed by the Industries have also been set up.

Thus other Government industrial schemes have been so integrated with this Industrial Estate programme so as to give the maximum beneficial results towards the development of Small Scale Industries. But then, the tremendous difficulties and delays in obtaining machinery and raw materials—imported or indigenous—are seriously hampering not only the progress of setting up new Small Scale Units but even the very functioning of established Units which are not able to produce even a fraction of their installed capacity. These difficulties have been damping the enthusiasm of many an entrepreneur and are putting the State Directorate of Industries and Commerce to extraordinary stress and strain in having to dole out the dwindling quotas against the ever mounting demands of the numerous industries and consumers. In the context of the present difficult foreign exchange situation, it is of course not easy to resolve these difficulties completely. It looks as though further establishment of new Units of the certain types of industries will only aggravate the difficulties, leading to the starvation of one and all such industrial units. It is hoped that the situation will ease and we will be able to get our requirements without much trouble.

[*From the speech delivered on the occasion of the inauguration of the additional units in the Industrial Estate at Guindy.*]



Insulator and a Cine Projector—some of the products of the Industrial Estate.

The Ruling Thought

> *It is proposed to publish a series of articles on Co-operative Farming in this journal with a view to providing some food for thought on a subject which is being discussed currently throughout the country. This is the first instalment of the series and does not reflect in any way the policy of the Government.*

The division of the people into the " haves " and the " have-nots " dates back to Plato. That division has not still been wiped out, despite the advance of time, anywhere, except perhaps, to a *large extent*, in Communist countries where human being have but been reduced to soulless creatures and cogs in the vast machinery of the State. Communism is, therefore, a *bete noire* to those who value freedom of thought and expression and especially to Indians who can boast of a spiritual heritage which has received a pæan of praise from many a thinker of noble and great thoughts.

No disagreement can, however, exist over the fact that the distance between the fortunate few and the unfortunate many should be shortened. To the poor God comes, said Mahatma Gandhi, only in the shape of bread and butter. If we ponder over this statement, we can very well realize the importance and urgency of ameliorating the plight of the poor. No poor man *lives*. He just exists. He just vegetates. If the blessings of material comforts are next to nothing to him, the blessings of spirituality are no greater to him. He too should enjoy spirituality. His style of life must be improved. For this, his standard of life should be raised.

A Co-optex Silk House for the exclusive sale of all Silk Cloth produced by Member Societies of the Madras State Handloom Weavers' Co-operative Society was declared open at Mylapore on 20th March 1959 *by Sri R. Venkataraman, Minister for Industries.*

Our spiritual heritage cannot also approve of the actions of those who are going in Rolls-Royce when their next-door neighbours are without a bullock-cart, nay, when they are wallowing in the mire of indigence. They should help them. Only then would the content of the spiritual heritage have been lived by the rich.

But the profit motive that rules the society seems to be too much even for our spiritual heritage ! It acts as a stumbling-block in the path of the betterment of all though it acts as a spur on the part of the individual for greater endeavour ; but it is, more often than not, disastrously acquisitive in character. The pages of history, from time immemorial, prove this up to the hilt. It helps the rich to grow richer and make the poor grow poorer. This state of thing should not be allowed to exist for long.

The doctrine of *laissez faire*, preaching that " every man for himself and the devil take the hindmost " and " that the State should keep the ring, while the individuals fight " had been weighed in the balance and found wanting. Almost as a reaction to this extreme type of individualistic philosophy, Communism has been embraced by some countries as the panacea for all the ills. But the thinking India could not adopt this philosophy of life because it is no unmixed blessing. It has, therefore, been struggling to forge a method to suit its own genius. And it has stumbled upon the socialistic pattern of society as the way out. It may or may not be the *sarvaroga nivarani* for all the ills afflicting our land but there seems to be no better method in sight.

The State has to intervene in the fields where only a few individuals try to feather their own nests, not very much caring for the interests of the vast masses of people. The Government knows full well that the tentacles of the State should not be octopus-like. They should not strangle social liberty. At the same time the Government would have failed in its duty had it not devised ways and means " to prevent ", to use the words of John Stuart Mill, " the weaker members of the community from being preyed upon by innumerable vultures."

The Government has, therefore, to steer clear of the Scylla of totalitarianism and the Charybdis of extreme type of individualism. Needless to say that cautious approach is being adopted over the delicate question of the power which can be legitimately exercised by the

State over the individual. No wonder, the Government progressively expands the public sector but not at a break-neck speed.

The Government have to bestow greater attention on agriculture too because India is predominantly an agricultural country where cultivation is carried on by the rack-rented, debt-ridden peasantry on minute-scale uneconomic holdings. It is the basic industry and provides employment to about 100 million people. It contributes fifty per cent of our national income.

According to the latest Census (1951) figures, out of a total population of 356.7 million, 249.1 million or about 70 per cent depend for their livelihood on agriculture. Out of this, 44.8 million or 18 per cent are landless labourers and another 31.6 million or 12 per cent do not wholly or mainly own any land.

The minute scale of Indian agriculture can be seen from the facts that 83 per cent of the holdings in Uttar Pradesh are below 5 acres, so also are 64 per cent in the Punjab, 49 per cent in Bombay, 71 per cent in Bengal. In Madras, 74 per cent of the holdings have an average area of 2.4 acres only.

The average yield per acre of agricultural products in India is comparatively poor. Average production of wheat per acre in India is about 700 lb., while it is 1,918 lb. in Egypt, 1,713 lb. in Japan, 898 lb. in China. As regards rice, production of India is about 750 lb. per acre while it is 3,444 lb. per acre in Japan, 2,998 lb. per acre in Egypt, 2,433 lb. per acre in China and 2,185 lb. per acre in United States of America. This bespeaks the backwardness of India's agriculture which by the way is due no less to the growing lack of soil fertility as to the medieval technique of agriculture and an almost complete lack of capital to be employed in it.

It is, therefore, imperative that the Cinderalla-like treatment accorded to agriculture in the past should be given up for good, and increasing attention should be paid to it by the Government. Of course, agriculture is a jealous mistress. But if she is tackled successfully, then a large slice of our national problems would have been solved. Only during recent years is agriculture receiving proper attention on a nation-wide scale and with funds, previously not thought of. The rapid growth of the population throws into clear relief the magnitude of the problem.

If these peculiar conditions of Indian agriculture and its overwhelming importance in the scheme of national economy are taken into consideration, then there is ' no choice ", to use the words of the Prime Minister, ' but to change India's social organization to broadbase opportunities through the field of co-operation in agriculture." The success of the co-operative movement in Madras which can be traced to the ideas on rural credit put forward by Sir William Wedderburn and Justice Ranade has inspired the Government to put forward fresh proposals for its reform. Since 1940 the handloom industry has benefited much from co-operation in Madras which has now about 1,000 co-operatives embracing about 44 per cent of the looms. What has happened in the handloom industry can very well happen in agriculture too with a little more attention being paid to it.

Then there can be no doubt that obedience to the law of co-operative endeavour in agriculture will bring about a silent revolution in the structure of society and augment agricultural efficiency and agricultural production, the struggle for mutual service taking the place of struggle for existence.

In the next issue :

TYPES OF CO-OPERATIVE FARMS

Tamil Development Council
Additional Members

The Government have nominated the following as members of the Madras State Tamil Development and Research Council :—

Vidwan Aiyamperumal Konar, representing the Tiruchirappalli Tamil Sangam, Tiruchirappalli.

Sri R. Kulandaivelu, M.A., Director of Information and Publicity.

Sri K. Santhanam, 'Sundara', Rajaji Nagar, Pallavaram.

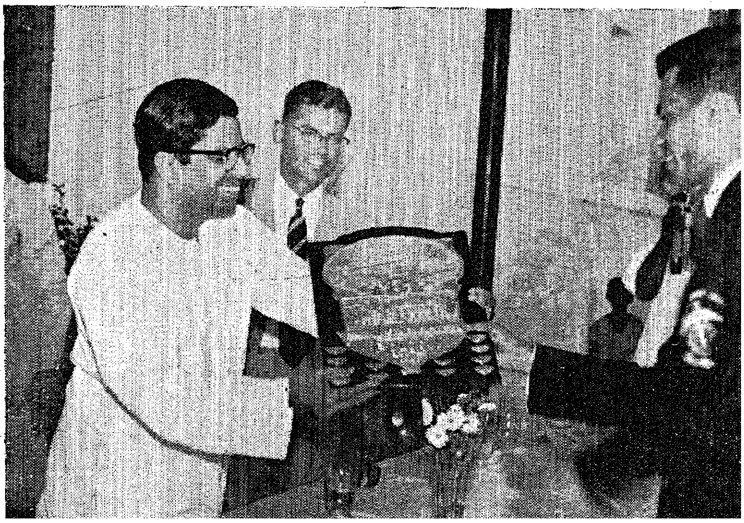
Sri G. R. Damodaran, Principal, P.S.G. College of Technology, Peelamedu, Coimbatore.

Sri T. A. V. Nathan, Editor, *Tamizh Nadu*, Madurai.

Sri A. G. Venkatachari, Assistant Editor, *Dinamani*, Mount Road, Madras.

Sri Anbu Ganapathy, Secretary, Presidency Tamil Teachers' Association, Pachaiyappa's College, Madras.

State and All-India Trophies won by the students of the Madras Veterinary College were formally presented to them by the Ministers for Finance and Agriculture. This photo shows the Minister for Finance presenting shield to a student.



A Milk Colony for Madras

SRI M. BAKTHAVATSALAM,
Minister for Agriculture.

The reorganisation of the milk trade in the City of Madras has been engaging the attention of Government from time to time. Several experts had given their suggestions but nothing tangible was done in the past. In 1953 the Government constituted an expert committee under the Chairmanship of Dr. A. L. Mudaliar to go into the question of the milk supply position in the City. The committee recommended among other things that the City cattle from the congested areas should be evacuated and settled in colonies to be formed on the outskirts of the City in conjunction with the sewage farms to be developed by the City Corporation.

According to the census conducted by the City Corporation there are now 2,200 milkmen in the City who keep about 15,000 milch-cattle. It is possible that there are many more cattle maintained in the City without registration to avoid payment of municipal taxes. The City cattle population may, therefore, be safely taken as over 20,000. They are kept in insanitary cattle sheds located in the congested parts of the City. Not only the health of the cattle housed under such insanitary conditions but also the health of the people living in the surrounding areas is adversely affected. The quality of milk produced under such insanitary conditions is also unwholesome.

The breeds of cattle in this State are neither extensive nor important from milk-yield point of view. However to meet the needs of the public a very large number of high grade and freshly calved animals are imported by the trade from the breeding tracts of other States like Andhra, Madhya Pradesh and Punjab. These animals after their stay in the City become partly or wholly unfit for further economic use. For several reasons the trade is not able to look after them properly. The calves do not get any chance to survive beyond a few weeks of their birth. The milkmen in the City have only a temporary interest in their cattle as casual producers of milk. The dry cattle do not return back to the breeding tracts in good condition. There is no steady inflow of good cattle. If suitable measures are not taken in a comprehensive scale there is every danger of milk becoming even more expensive than now and more and more scarce. The quality of the market milk is also far from satisfactory and neither the producers, nor the consumers appear to be satisfied with the state of affairs prevailing in the trade. Adulteration of milk is rampant and quality control measures are almost non-existent.

It is clear from the foregoing account that only if the milch cattle are moved out of the City and settled in better and natural rural surroundings the quantity and quality of milk supply to the City can be improved.

It is with the above-mentioned object in view that the Government decided in principle to establish a milkmen's colony on the outskirts of Madras City and accorded sanction for the acquisition of about 600 acres of land at Madhavaram Village about 7 miles from Madras. A Milk Committee under the Chairmanship of the Chief Engineer (General), Public Works Department was constituted to work out the detailed plans and estimates and submit a comprehensive milk scheme to the Government. The Committee accordingly drew up a scheme to colonise 4,000 cattle at an estimated cost of Rs. 123,77,000.

The salient features of the scheme are as follows :—

(1) The City cattle will be moved out of the highly congested areas of the City like Georgetown, Washermanpet, etc.

(2) Four thousand cattle of good quality will be provided with accommodation in the cattle colony at Madhavaram Village near Madras City. Accommodation for the cattle and residential quarters for the cattle owners will be provided in the colony and a nominal occupation charge will be levied. Milkmen who seek admission into the colony will be admitted in units of 10 cattle each. Besides milking sheds, accommodation for all suckling calves and 20 per cent of dry stock will also be provided in the colony.

(3) The fodder required for the colony cattle will be supplied from the adjacent sewage farm which is now run by the City Corporation.

(4) Free veterinary aid and artificial insemination facilities will be provided for the cattle in the colony.

(5) All the milk produced in the colony will be purchased by the Government at a price which will have to be mutually agreed upon.

(6) A central dairy with up-to-date plant and machinery and a quality control laboratory will be set up in the colony for the processing of 150,000 lb. to 200,000 lb. of milk a day.

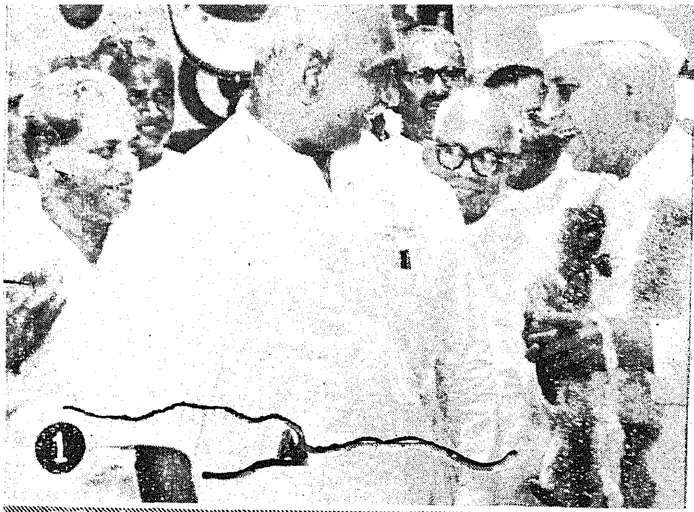
(7) Besides the milk produced in the colony, the Central Dairy will also receive milk from rural areas collected mostly through village co-operatives.

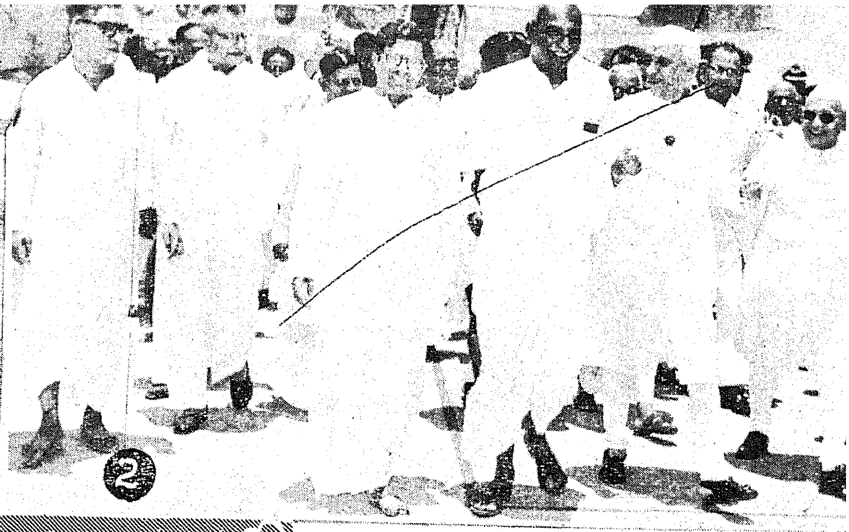
(8) All the milk received at the Central Dairy will be subjected to quality tests and payments to producers will be made on quality basis only.

(9) The Dairy will process separately cow's milk, buffalo milk and toned milk. The processed milk will be supplied to the public in sealed bottles through Government Depots and authorised delivery boys.

(10) The entire working of the scheme will be ultimately controlled by a Statutory Milk Board.

(*Continued on page* 36)





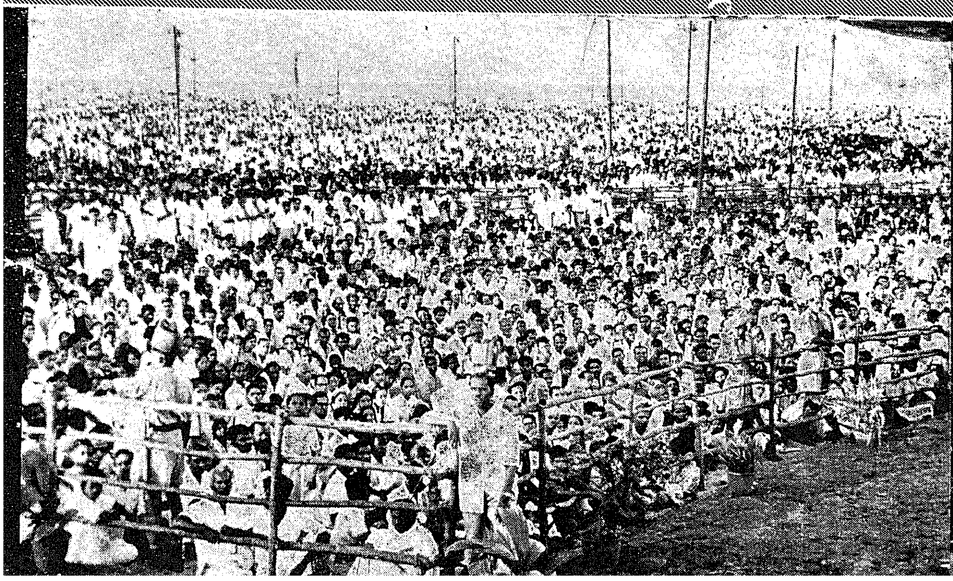
PRIME MINISTER IN THE CITY

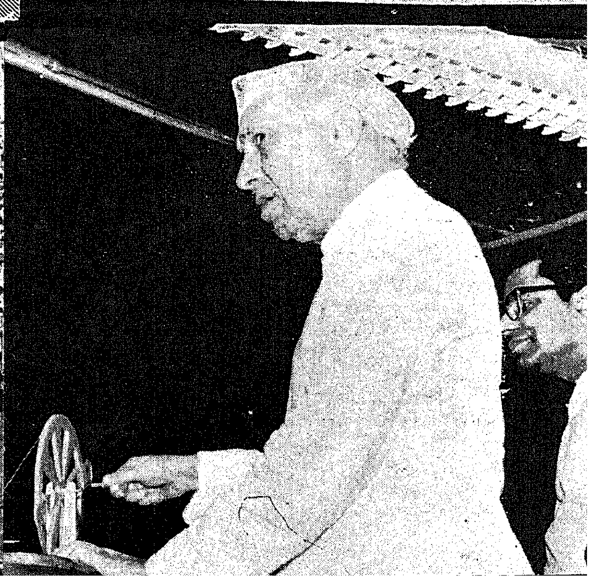
Sri Jawaharlal Nehru arrived in the City on 14th April on a 4-day visit to the State. In the City, he unveiled the Statue of Gandhiji at the Marina, inaugurated a Children's Riding Club and a Children's Park.

1. and 2. *Arrival at the Meenambakkam airport.*

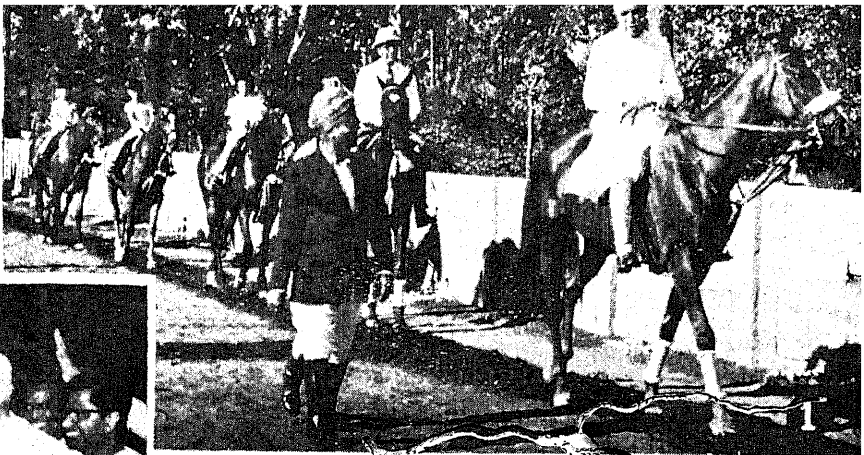
3. *The Statue of Gandhiji.*

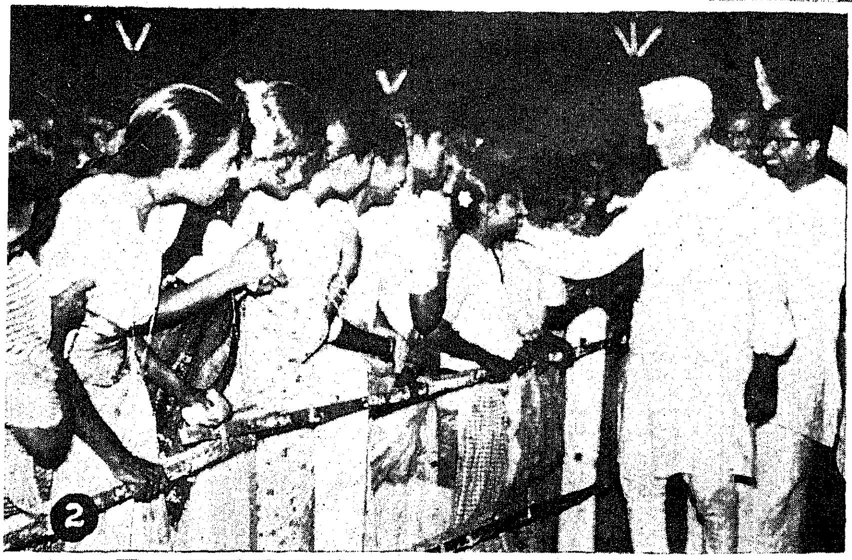
4. *Unveiling the statue.*

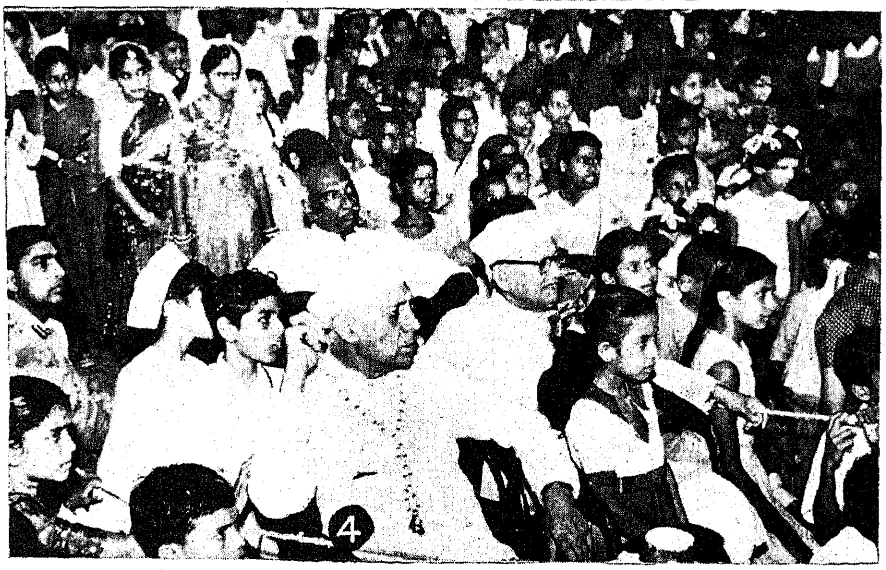


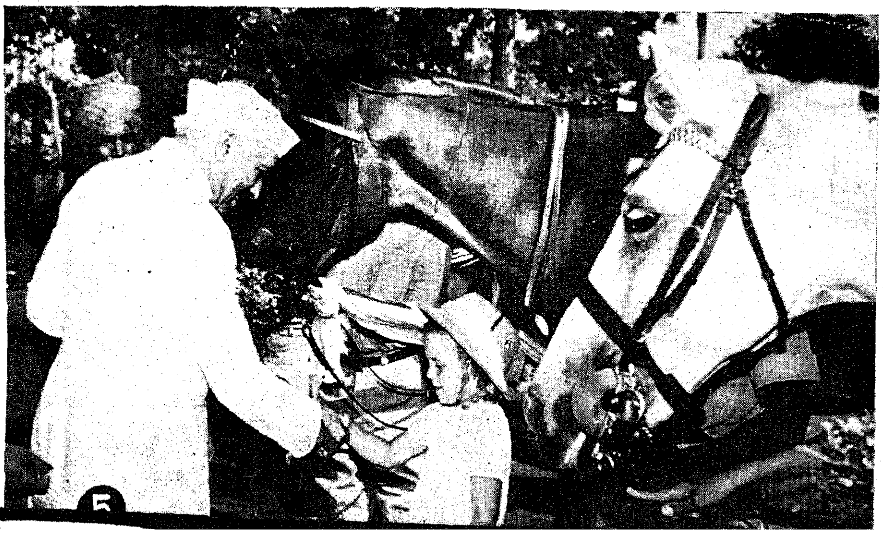


CITY ENGAGEMENT

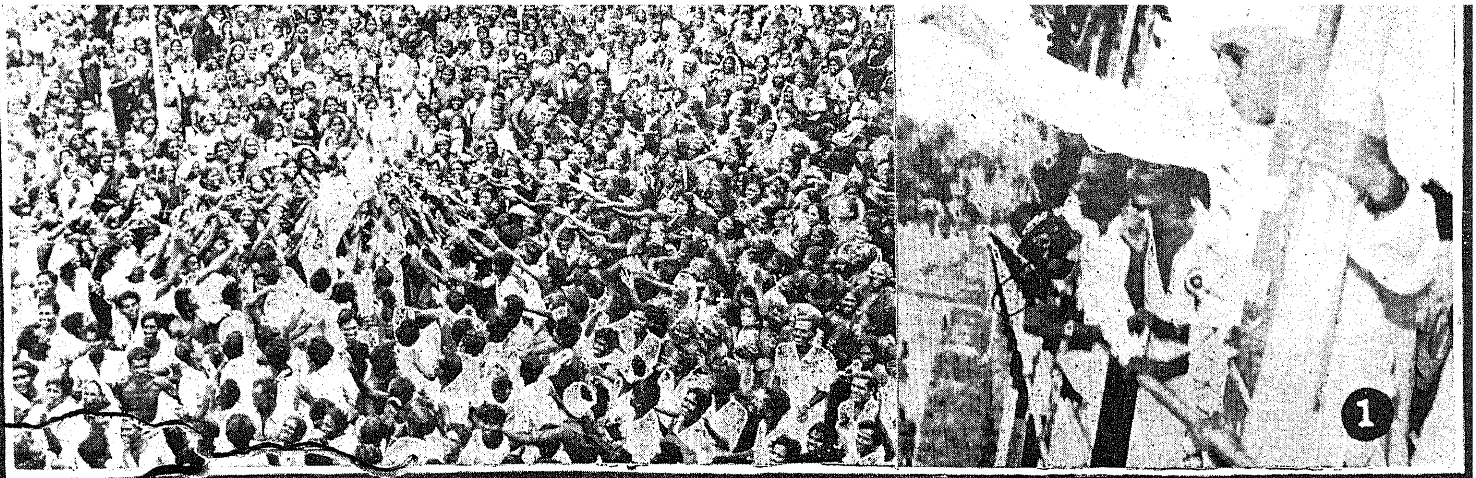


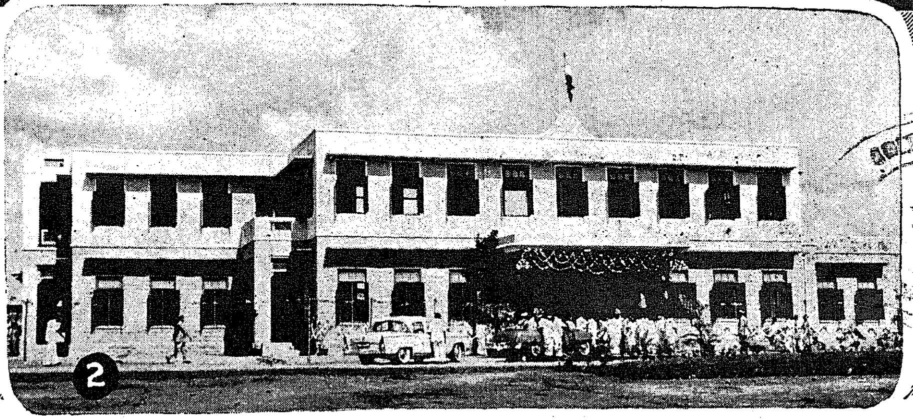






1. *Riding at the Children's Riding Club.*
2. and 4. *At the Children's Park.*
3. *Receiving from Sri Sivaji Ganesan, a donation of One lakh of rupees towards the Mayor's Mid-day Meal Fund.*
5. *Greeting a member of the Children's Riding Club.*

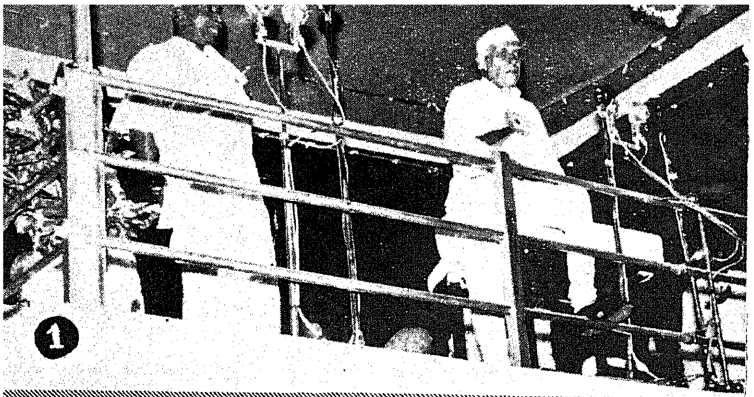




PRIME MINISTER'S TOUR

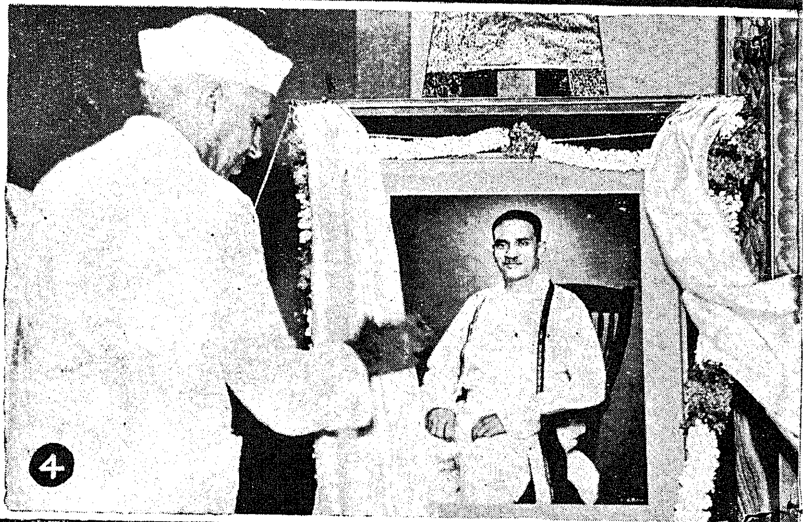
Enthusiastic crowds greeted the Prime Minister at all places he visited in the course of his tour in Tamil Nad. At Thekkur in Ramanathapuram district and Adaikkalapuram in Tirunelveli district the Prime Minister participated in the School Improvement Project conferences.

1. *Greeting the crowd gathered to cheer him as he drove past a bridge at Manamadurai.*
2. *The school building at Thekkur.*
3. and 4. *At the School Improvement Project Conference at Thekkur.*



1. *At the public Meeting at Tuticorin.*

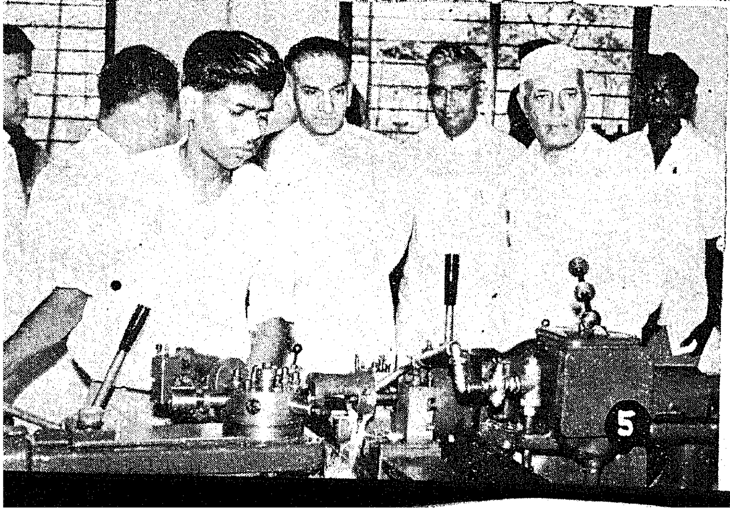
2. *With the pearl divers at Tuticorin Pearl fishery.*



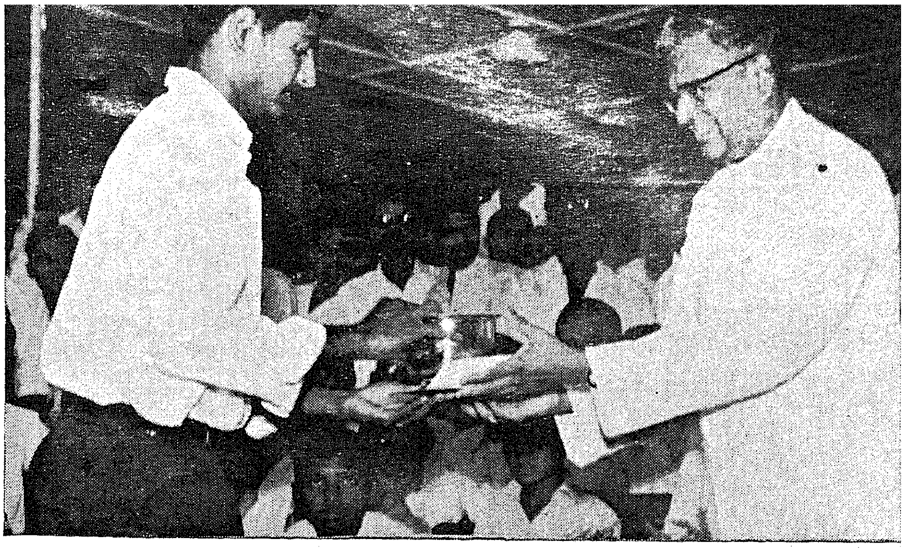
and 4. *Unveiling the portrait of Sri Kumaraswami Raja at Rajapalayam.*

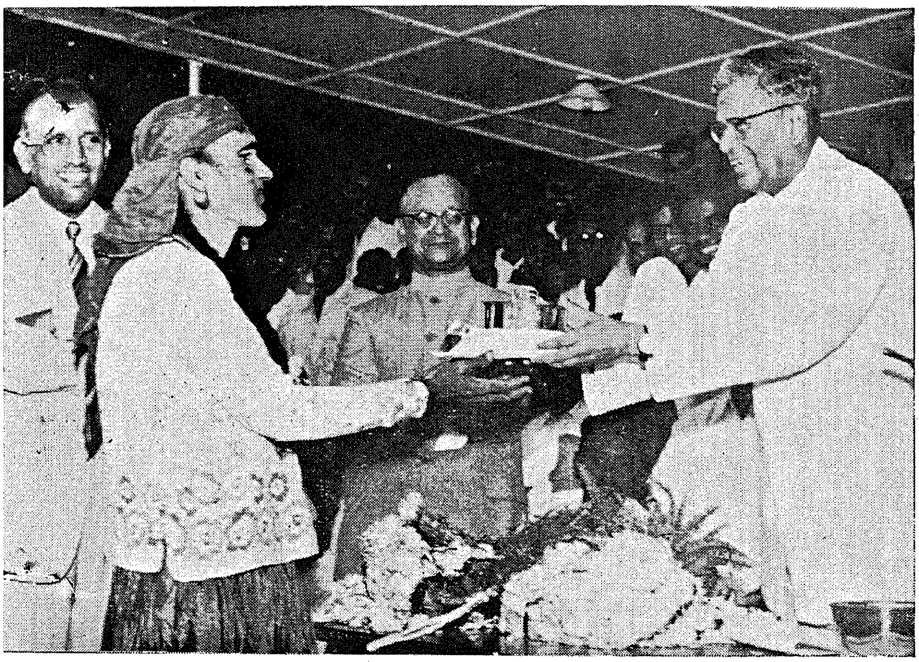
5. *At the Industrial Estate at Madurai.*

6. *Tete-a-tete with the Chief Minister at Adaikkalapuram.*



STATE TRANSPORT EMPLOYEES SPORTS





The Annual Sports of the Madras State Transport Employees was held in March. The photographs show Sri. R. Venkataraman, Minister for Industries and Nationalised Transport, distributing prizes.

Below : *Finish of the Lemon and Spoon Race for the girls.*

College Education

Tamil as Medium of Instruction

Government have had under consideration the question of medium of instruction in colleges for a long time now. It was decided long ago that, as stated in the Government's memorandum submitted on the report of the Official Language Commission, it should be an objective of educational policy to bring about the progressive development of the regional language for use as the medium of instruction at every stage of education, not excluding the highest. The policy of Government in the matter has been stated thus in the answers given to the Questionnaire of the Official Language Commission "to adopt the regional language or mother-tongue as the medium of instruction at the secondary stage and also to make possible the adoption of the regional language as the medium of instruction at the University stage." But Government have not been unaware of the difficulties in implementing the latter part of this policy chief of which are the great paucity of the necessary literature in the various fields of knowledge and the paucity of teachers qualified to teach in the language. In the Memorandum submitted by the Government to the Official Language Commission, the attitude of Government (which was endorsed by leaders of all parties in the Legislature) was formulated as below :—

"There is a conflict requiring reconciliation, between two different objectives, viz., the need for raising higher educational standards and the need, also, to develop the potentialities of the mother-tongue as the vehicle of culture. The Government of Madras have not yet taken a decision on how this reconciliation is to be effected. Present indications are that the answer will have to be found.

First, in making a distinction within the field of higher education between scientific and professional education and education in the "Humanities", and, on the basis of this distinction (*a*) taking active steps to bring about an early change in the medium of instruction in colleges so far as the latter is concerned ; and (*b*) continuing to use English as the medium of scientific and professional instruction in colleges, at any rate, without change until 1965 ; and

Secondly, while continuing to maintain English as the Second Language and subject of compulsory study in Secondary Schools, to undertake all practicable measures for improving the efficiency of instruction in the study of that language."

This question was discussed by the newly constituted Tamil Development and Research Council where the view that a beginning should be made with Tamil as the medium of instruction in the reorganized B.A. degree courses found almost unanimous acceptance. The question has been further discussed with the Vice-Chancellors of the two Universities in the State and *their advice taken.* As a result of these discussions, Government wish to reaffirm explicity their policy in the matter as set out in the Memorandum presented to the Official Languages Commission and declare that English will continue to be the medium of instruction in respect of all University degree courses except the reorganized B.A. degree courses and that no change in this respect will be considered, until the two following conditions are satisfied, viz., (i) the change-over should be demonstrated to have been successful in respect of the B.A. degree courses ; and (ii) an agreed decision on the nature of the changes (if any) to be made in respect of any other University degree course should be taken on a co-ordinated basis for all Universities in India.

The medium of instruction of the reorganized B.A. degree courses in the State will accordingly be changed to Tamil. It is obvious that the best time schedule for this change will be one which will link it with the reorganization of Secondary Education. This is due to commence in the academic year 1959-60 and the first batch of pupils admitted to the new VIII standard during that year will complete—the new XI standard in the Higher Secondary School (as the equivalent of the Pre-University Course in Colleges) in 1962-63. Those students of this batch who are declared eligible for admission to the B.A. degree course, will therefore constitute the first batch of pupils for whom instructions will be available in the Tamil medium in the Colleges of the State. That is to say, the change will be made from English to Tamil as the medium of instruction in the B.A. degree course during 1963-64 for the first year of the course, during 1964-65 for the second year of the course and during 1965-66 for the third year of the course. At the end of the Third Five-Year Plan, the first batch of pupils will get their B.A. degrees after completing their entire education in schools and college with Tamil as the medium of instruction.

It will be open to private colleges to continue to provide English medium instruction in the B.A. degree courses even after this change-over is effected ; but no grant will be payable by the State Government in respect of such courses.

Government wish to make it clear that the study of English as a subject will continue in the new Tamil medium B.A. degree courses and emphasize that the standard in this subject will be, as it is at present, the same as in Part I of the reorganized B.Sc. degree courses.

In order to commence the change-over during the year 1963-64 all necessary preparations will have to be completed before the end of 1962-63. The adequacy of these preparations should be demonstrated by the fact that those who have made the preparations have actually succeeded in providing the instruction in Tamil successfully for all the three-years of the B.A. degree course; Text books, Technical Terms, Instructional machinery and procedure should be evolved in the actual process of imparting instruction in the Tamil medium. To this end, a " Pilot College " will be organized. The change-over will be introduced in the first year of the B.A. degree course during the year 1960-61 in the " Pilot College " and extended to the Second year and Third year in the same College. In the process of imparting instruction in the Tamil medium in this college, all the preparations necessary for the change-over to be made throughout the State during the year 1963-64 will also be carried out. Government have decided that the Government Arts College, Coimbatore, will be the " Pilot College " where the change-over will be introduced in 1960-61.

Government are anxious that the pupils taking the Tamil medium B.A. degree course in the Pilot College in 1960-61 should not entertain the apprehension that their future prospects will be adversely affected thereby. To this end, Government wish to give the assurance that these pupils will not only have equal opportunities with others in regard to admission to post-graduate courses, employment under the Government of India, etc., but will also be given special preference in the matter of selection to suitable appointments under the State Government and in quasi-Governmental agencies.

To advise them on the implementation of this policy and to plan the various preparatory measures to be undertaken in order to introduce the Tamil medium in the Pilot College in 1960-61, Government appoint a committee to be known as the 'College Tamil Committee' consisting of the following members:—

1. Sri G. R. Damodaran, Principal, P.S.G. & Sons Charities, College of Technology, Peelamedu—Chairman.

2. Sri V. A. Devasenapathi, Reader in Philosophy, University of Madras.

3. Sri K. R. Appalachari, M.A., L.T., Principal, V.O.C. Training College, Tuticorin.

4. Sri S. Velayudhan, Chief Professor of Economics, Presidency College, Madras.

5. Sri T. P. Meenakshisundaram, Head of the Department of Tamil, Annamalai University, Annamalainagar.

6. The Principal of the Government Arts College, Coimbatore,

and three other members to be co-opted by the Committee. Sri V. Kannaiyan, Secretary of the Tamil Development and Research Council, will be the Secretary of the Committee. The necessary staff to assist the Committee in its work will be appointed in due course.

The Committee will consider the following points and advise Government on them :—

(i) The mode of selection of pupils for the B.A. degree courses in the Pilot College. It is necessary that pupils should be chosen from every district and should be the best among those, who, being eligible for admission to the B.A. degree course decide to take that course.

(ii) The selection of staff to conduct the new courses—The staff of Professors and Lecturers for the various subjects of the B.A. courses in the Pilot College should be specially got together so as to comprise an organized team which will be competent to impart instruction in the Tamil medium. Even though the Pilot College will be a Government College, the selection of staff for these courses need not be confined to people in Government service and the choice should be from as wide a circle as possible so long as the persons chosen possess the qualifications prescribed by the University. The Committee might prepare a list of suitable persons to take up the various subjects of the B.A. course from which Government could choose the members of the staff to run the new courses.

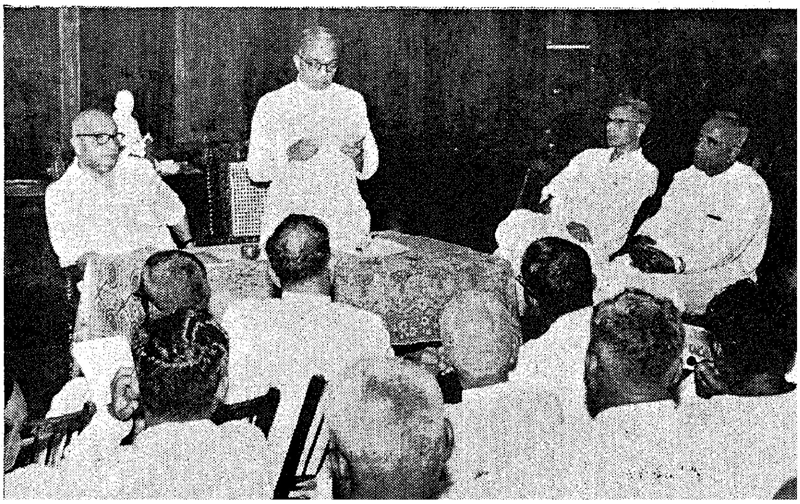
(iii) Preparation of text books and lecture notes for the new courses.

(iv) Technical terms to be used in the new courses —As far as possible, well known international terminology should be used subject to such adaptations as may be necessary. Well known Tamil terms may be used but it would be desirable in such cases to have the international terms also indicated in brackets.

(v) Any other matter relevant to the conduct of the Tamil medium B.A. courses.

The Committee will be free to consult all persons whose advice and opinion in the matter will, in its opinion, be useful. The first report of the Committee may be submitted to Government in three months.

Dr. U. Krishna Rao, Speaker of the State Legislative Assembly, addressed the members of the Madras Branch of the Parliamentary Association on the impressions of his visit to some of the Parliaments in the Commonwealth.



Glazed Pottery of Karigiri

SRI E. N. NARAYANASAMY,
Assistant Director of Industries and Commerce, Vellore.

The art of making pottery is as old as Civilization itself. It is difficult to say which people discovered the unique properties of clay first. What could have held the attention of the primitive man or invited his investigations more than this raw material found in such abundance with such sensitiveness to manipulation and responsiveness to touch ?

Pattern of life in our villages shows that at one time they were self-sufficient units. Like the weaver, the blacksmith, the carpenter and other artisans, the potter also was an essential inseparable part of the village society. With the cheapest raw materials and crudest tools and equipments our village potters even to-day produce not only articles of utility but also wares of great charm—perfect in form and design. However, the village potter unfortunately has been unaware of the development the industry was making outside with the result that he finds to-day a shrinking market for his wares. At the same time modern factories spring up catering for the present day needs in ceramic wares and the potter finds no place in them as he has neither the useful knowledge nor the required training. The industry in its turn has been unable to tap the resources of the traditional skill and craftsmanship of our village potters. Can we reconcile this situation, the situation in which Pottery industry develops without potters ? Can something be done to make the village potter the backbone of the developing Pottery Industry ? Can the traditional potter be trained and his craftsmanship and skill made use of to produce articles to meet the present day demands ? This problem invites immediate attention.

This article endeavours to give some idea of the potters of Karigiri whose traditional glazed pottery wares have earned a name among art lovers. It may not be out of place here to mention in passing something about the Ceramic Industry of which glazed pottery forms only a part.

Fig. I.

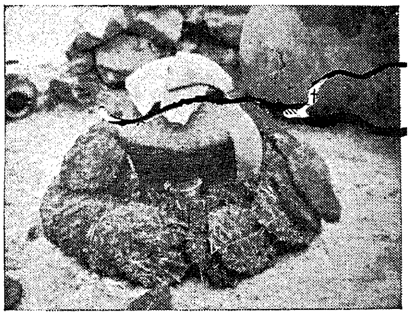


Fig. II.

The word ' Ceramics ' is of Greek origin, having been derived from the word ' Keramos ' which in Greek means ' burnt stuff '. Later the word came to be applied to non-metallic and it became synonymous with fired clay wares. But the Ceramic Industry in its modern sense may be said to include the following branches: White-ware, heavy clay product, refractories, abrasives, glass, enamels and cements. Actually the industry as known to-day is a group of many smaller industries which are distinct and separate and are only grouped together for convenience. In spite of wide variation in the process used and the materials employed in these industries they are all treating silicates or closely allied oxide materials by the use of heat for the purpose of producing useful products.

Karigiri is a small village in Madras State which has now become famous for its decorated Pottery. This village is three miles north of Katpadi Railway Junction on the Southern Railway. The glazed Pottery Industry here is said to have been in existence for the past several generations. There are at present six families of potters in this village and the legend goes that they are all the descendants of one ' Sanyasi Udayar ' who is said to have been engaged as a craftsman by the Nawab of Arcot (18 C.A.D.) who used to camp at his Karigiri Fort quite often. The ruins of this fort are still in existence near Karigiri village. It is said that this Sanyasi Udayar was specially engaged by the Nawab for making hukkas and other articles for him. This has slowly developed and the potters now make many types of decorated glazed articles of *traditional* design. Bowls, jars, khojas, etc., of bright colour and ornate beauty are among them. They reveal in them traces of Muhammadan culture of the times. The present generation is the most benefited through wide public patronage and efforts of Government to improve their craft.

The manufacture of glazed articles by these potters makes an interesting study. Their pottery, till about seven years back, were being made of white ' Namakatti ', a substance traditionally used by a certain section

of the Hindu community for putting caste-marks on their foreheads. Namakatti is a type of impure calcareous clay which turns plastic when mixed with water. Of late these potters have started using a whitish clay occurring near Karianthangal in Chingleput district, which is about 60 miles from Karigiri. This clay works out cheaper to the potters than the "namakatti' they used to buy locally at exhorbitant rates. The whitish clay is made plastic with addition of required amount of water, well kneaded into a dough like mass and articles shaped on ordinary potters'

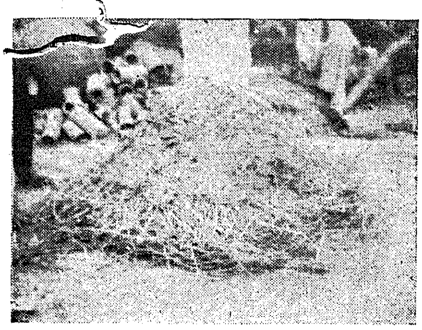


Fig. III.

wheel. When the articles are in leather-hard condition, several designs and motifs are worked on them by the use of ingeniously deviced hand-tools and implements. Various forms of decorating are resorted to at this stage. Then the articles are drier in shade and after complete drying, they are baked to low temperatures of about 400–500° C. which process is known as 'biscuiting'. With this processing, the articles attain sufficient hardness to enable them to be handled easily. Biscuited wares are then coated with 'glaze' usually coloured either green or blue.

Glaze is a ground mixture of several oxides of minerals and chemicals which, when applied on clay wares and heated up to suitable temperature, melt and cover the surface and give a blossy finish. Raw lead which fuses at a very low temperature is the main constituent of the glaze used by Karigiri potters. The glaze materials are ground in their own homes on griding stones (ammi) and then applied on the biscuited wares.

After the application of glaze, the articles are again baked to temperature of about 800° C. in a crude form of a kiln, adopting a process of burning which is as old as the history of pottery in this village and which has not undergone any change so far.

The illustrations shown above will help the reader to understand the various stages of buildings up this interesting kiln and the manner the articles are fired to develop the gloss. Figure 1 shows how the articles are placed on crude forms of 'stilts' or otherwise known as 'props', giving the minimum points of contact so that the glaze on melting may not stick to the supports. Sometimes the glaze is also scraped off at the points of contact. Then, three small pipes, specially made for the purpose, are placed around the articles to be fired, which serve as pedestals for a big size broken pot to rest upon and cover the articles as shown in Figure 2. The broken pot serves the same purpose as saggars do in modern ceramic factories. They prevent the articles from getting discoloured by the smoke during the firing process. Fuel, mainly cowdung cakes and straw, is then stocked all over in sufficient quantity which is judged by experience, so as to obtain the required temperature to melt the glaze. Finally, the stock is plastered with ordinary earth, as illustrated in Figure 3 and the kiln which was built up to methodically is then lit up. Fuel gets burnt and the glaze melts at the highest temperature attained in the kiln. The entire stock, after complete burning of the fuel, reduces to the size as seen in Figure 4. Allowing for a day's cooling, the kiln is broke open to remove the glazed articles.

Pottery of Karigiri, though remarkable for its simple technique of production evolved by the villagers years ago, has many drawbacks in them. The potters make only few designs evolved years ago and no attempts are made by them to produce new types or improve on old ones. Only blue and green are the colours used by them and they are ignorant of materials that can produce other colours and shades. Their products also have certain technical faults. The main fault is that the glaze is not scientifically compounded and so, the glaze and the body do not fit properly resulting in the defect known as 'crazing'. Again glaze coating is not uniform causing deep shades where the glaze is thick and light where it is thin. The body is also highly porous and the articles are very fragile.

To obviate the technical defects and to give a fillip to this traditional craft, the Department of Industries and Commerce, Government of Madras, with the assistance from the All-India Handicrafts Board, have worked out a scheme for the development of Karigiri Pottery. Under the scheme, an improved type of rectnagular down-draught kiln, at a cost of over Rs. 2,000, was built at Karigiri for biscuiting and glaze firing the articles. This kiln which is a permanent structure will facilitate greater control of firing operations and provide for higher and more uniform distribution of temperature inside it. The kiln can be used for biscuiting the body first to a temperate of 700 to 800° C. and then for glost firing to a temperate of 1,040° C. or over if necessary. Coal will be used as fuel. The department has also started an experimental centre situated in the premises of School of Arts and Crafts, Madras, for conducting a systematic study of the

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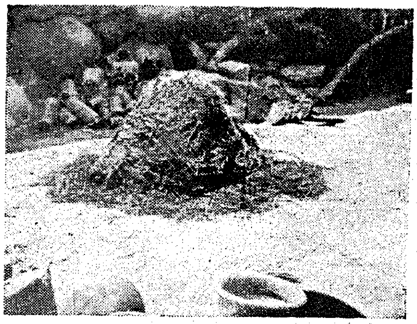

Fig. IV.

Drink More Milk Campaign

SRI V. BALASUNDARAM, I.A.S.,
Registrar of Co-operative Societies.

Milk is one of the few foods which can be consumed in its natural state and which possesses also all the essential ingriedients of food required for an "Ideal and balanced diet". Milk is made up of water, proteins, fat, sugars, minerals and vitamins in the right proportions. Though some pulses and grains supply a quantity of vegetable proteins, it is necessary also that an adequate quantity of animal protein is provided for in the human diet. Milk is a good source of such animal protein and it is of special significance to those who are vegetarians. The bulk of the population in India comprises of vegetarians and hence the consumption of milk as a necessary article of diet is of vital importance. But at present, the *per capita* consumption of milk in India and especially in the Madras State is far below the normal standard laid down by nutrition experts. Increased and wider consumption of milk by the people is urgently needed.

In order to achieve increased consumption of milk, there should be not only increased production of milk but it should be made available at rates within the means of the common citizen. Though India has a large cattle population, a fourth of the World Cattle Population, the output of milk is poor and according to the law of supply and demand, milk has acquired a scarcity value and consequently not cheap enough to reach the lower groups of the people. This two-fold problem has been receiving special attention of late. Besides proper feeding and maintenance of animals, special steps are under way to improve their breed so as to yield more. Milk Co-operatives and Cattle Breeding Societies have been formed in large numbers in this State to tackle these problems and under the Second Five-Year Plan, a marked advance has been made in the production of more milk. We have at present 696 Milk Supply Societies, 20 Milk Supply Unions engaged in milk production. On account of the special attention given to this matter, the milk production in the State which stood at 39,200 Madras measures per day as on 1st April 1956 has risen to 52,667 Madras measures pey day at the close of the year 1958–59. There are 16 societies engaged in improving the breed of the cattle. The process is doubtless slow, but it has to be tried and implemented patiently.

Besides increased production, co-operatives have to devote their attention to the building up of the market and make people "Drink More Milk". In the first place, the milk drawn from the animals should be processed and pasteurized to make it safe for human consumption and also to retain its qualities for a longer time to meet the exigencies of the market. Secondly, the machinery required for effective marketing of milk to a wider section of the people should be built up and adequate facilities provided for this purpose. Thirdly, intensive propaganda is needed to rouse the consciousness of the people in the matter of increased consumption of "milk" compared to the other beverages available in the market.

In the matter of processing of milk, the Madras Co-operative Milk Supply Union was the first to install a pasteurization plant in 1939 and it is now handling daily about 16,000 lb. of milk for pasteurization and supply in the Madras City. Under the Second Five-Year Plan more such pasteurization schemes have been included for implementation. The Kodaikanal Milk Supply Union undertook the installation of a pasteurization plant of 60 gallons per hour capacity and it was installed in the first year (1956–57) of the Plan. Another pasteurization scheme for the Coimbatore Co-operative Milk Supply Union has been taken up in 1958–59 for execution and it is expected that a plant for Madurai will be taken up in 1960–61. There are also similar schemes awaiting implementation through the Tiruchi-Srirangam and Salem Milk Supply Unions and an additional plant for the Madras Milk Supply Union, which may perhaps be included in the Third Five-Year Plan. Chilling of milk is yet another way to facilitate handling of larger output and three schemes under the Second Five-Year Plan are under consideration. To facilitate the speedy transport of milk in bulk from the newly opened production centres to the factory, a scheme for the purchase of two milk vans for the Madras Milk Supply Union has been included in the Plan and sanctioned. Government advances are also available for the purchase of vans wherever needed.

As regards building up of the market, it is necessary that adequate facilities should be provided to cater to the needs and requirements of the consumers at all times and make the milk available round the clock. For the Madras City, a scheme for the opening of 10 depots in addition to the existing 54 retail depots, duly equipped with coolers so as to stock milk and sell, is under consideration. Further, with a view to getting the milk distributed in time, it is proposed to equip the Union with 12 lambrettas. In the mufassal Unions necessary action is being taken to augment the number of sales depots

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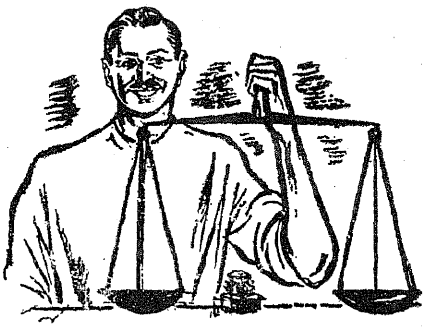
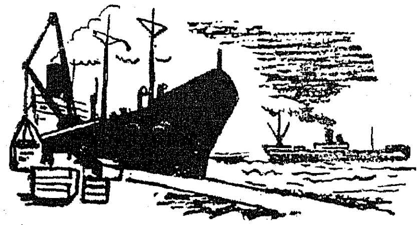
TWO *Great* BENEFITS

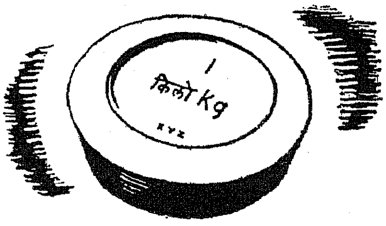


The change-over to the Metric System of Weights and Measures will benefit us in two important ways. At home, there will be an end to the confusion and loss arising from innumerable systems.



We will at the same time have the system which has been internationally well established. The Metric System is recognised the world-over.

The first step in achieving this two-fold objective is the use of Metric Weights already introduced in selected areas of the States and industries.



METRIC SYSTEM

for Simplicity and Uniformity

DA 58/438

ISSUED BY THE GOVERNMENT OF INDIA

Cooperative Dairying

SRI M. A. HAFEEZ,
Joint Registrar of Co-operative Societies, Madras.

No Industry is as akin to agriculture as " Dairying ". It is a natural off-shoot of it. Next to land, cattle is the primary asset or the working capital of the ryot. The cattle provide organic manure for the land and enrich the soil. They are used on the land for ploughing and draught purposes, while the female-stock yield milk which is consumed not only by the ryot and his family but the surplus marketed to others. In a country like India, mechanized agriculture is yet the exception and hence cattle will continue to be all-important to agriculture for many more years to come. While there is a possibility in the distant future of replacing the work-bullocks by agricultural machinery, it would be impossible to replace or eliminate the milch animal. On the contrary, there is bound to be greater and greater demand for the milch cattle so as to provide more milk for the growing needs of the country. " Dairying " will thus continue to be as important as it has been hitherto.

" Co-operation " gives all the motive force to the sound organization of the dairying industry. As it stands at present, in the vast majority of villages, the industry is carried on individually in a disorganized fashion, leading to no economic benefit ultimately. Co-operation is the right solution for this and it has been recognized on all hands that " Dairying " should be organized and stabilized as a virtual and live industry in the co-operative way. The common ryot does own one or two milch animals along with his pair of plough bulls ; but this does not enable him to run the dairy industry on economic lines. In the first place, he needs credit to go in for the right type of milch animals and also build up an adequate stock to run the industry on economic lines. The credit should be easy, not costly, repayable in reasonable instalments consistent with the income derived from the industry. Next, there should be sound management of the animals, i.e., proper breeding, scientific feeding and provision for salvage of dry stock. Further, the milk produced should be got market-ed at a profit and should there be any surplus, it should be got converted into such by-products as would not result in loss. All the aspects of the industry demand a high degree of technical skill, not always available with the common ryot in Madras.

Early organization of the industry on co-operative basis is therefore called for. In Madras, efforts in this direction date back to the twenties of this century when milk supply co-operative societies intended for the milk-men producers and to improve their economic status came to be started. A cluster of such societies were formed round about Madras City in the District of Chingleput and also in the Madras City and these were federated into the Central institution, called the Madras Co-operative Milk Supply Union which came into being in the year 1927. It made a small beginning with 48 Madras measures of milk per day and in due course, it formed many more such feeder societies and stepped up its daily production to 6,691 Madras measures. To-day the Union has as many as 131 feeder societies with an average daily production potential of 9,000 Madras measures. In the other parts of the State too, the gospel of co-operation spread and similar Milk Co-operatives and Unions came to be formed. We have now as many as 565 Milk Supply Societies and 19 Unions in the State exclusive of the Madras Milk Supply Union and its feeder societies.

Provision of Credit.

The first and foremost problem has been to provide the requisite credit to the ordinary agriculturist to own milch cattle or replace the dry or worn-out stock. During the early years of the formation of the milk co-operatives, Government came forward and provided loans free of interest for the purchase of milch animals from the year 1945–46. This concession continued up to 1951–52 when such loans were replaced by interest bearing loans at 3 per cent. The rate of interest was increased in subsequent years and now the rate is 5¼ per cent per annum. Under the Second Five-Year Plan, greater attention is bestowed to provision of more credit to the milk co-operatives so as to enable their members to purchase and own milch animals. During the first year of the plan (1956–57), Rs. 7 lakhs were disbursed as loans, in second year Rs. 8 lakhs and in the third year Rs. 10 lakhs to the co-operatives. These loans are now being supplemented also by the loans made available by the District Co-operative Central Banks. Under section 17 (4) (c) of the Reserve Bank of India Act, the District Co-operative Central Banks are eligible for drawing upon the Reserve Bank Credit for financing Milk Co-operatives for enabling their members to purchase milch animals. The District Central Banks have therefore been requested to avail of this facility and make the required credit available to the societies at a rate of 4½ per cent which would enable the latter to lend to the ultimate borrower at a rate not exceeding 6 per cent. The normal credit limit per individual for such loans is restricted to Rs. 250 and in special cases to Rs. 500. Where the societies need larger loans on behalf of the members, who desire to go in for high-bred animals, the individual credit limit could be got enhanced even up to Rs. 1,000.

Breeding Programme.

While providing more credit facilities, the purchase of the right type of milch animals by the members

should be controlled effectively so as to give the maximum results. The members should be given the proper guidance for the selection of the right animals suited to the breeding tract so as to gain the double object of improving the local breed and also increased milk yield. It would be impossible for the individual ryot to undertake any breeding programme himself. No doubt, the guidance of the Animal Husbandry Department is available for improved breeding. Key Farm Villages are being opened in the breeding tracts under the Government of India Scheme. Artifiicial Insemination Centres are also being opened wherever needed. However, co-operative effort in this direction is also necessary to bring about a more voluntary urge on the part of the members to take to breeding schemes and also exercise an educative influence on the members. Co-operative Cattle Breeding Societies have been formed at 16 centres in the Madras State of which, 4 were established under the Second Five-Year Plan with 14 stud bulls (6 bulls and 8 murrah buffalœ bulls). A scheme for integrating the activities of the Cattle Breeding Societies with the Milk Supply Societies has recently been introduced in the area of operations of these Cattle Breeding Societies at Uttiramerur, Semmanangur and Tudiyalur, according to which, select members of the Milk Supply Societies working in their jurisdiction will be advanced loans of Rs. 500 each for the purchase of high-bred heifers and on condition that the members hand over their first male bull-calf to the Cattle Breeding Society on payment of a nominal amount of Rs. 50. During the last two years of the Second Five-Year Plan, 8 more Cattle Breeding Societies would be established at suitable centres to gain the above objective.

Handling of Milk.

Next, we have to devote our attention to the scientific handling of the product of the Industry, namely, milk, and the marketing of it to the best advantage of the producer members. At the stage of milking, special attention should be devoted to common milking under effective supervision, pooling and assembling of milk in hygienically cleaned milk cans. The Milk Co-operatives in Madras have become quite accustomed to these innovations and the quality of milk is assured, even though the system of pricing of milk on the fat content has not yet come into vogue. The system of chilling milk after it is pooled has not yet been introduced. There is a proposal to start " Chilling " at Singaperumalkoil which is one of the centres at which the Madras Co-operative Milk Supply Union pools its milk drawn from the villages.

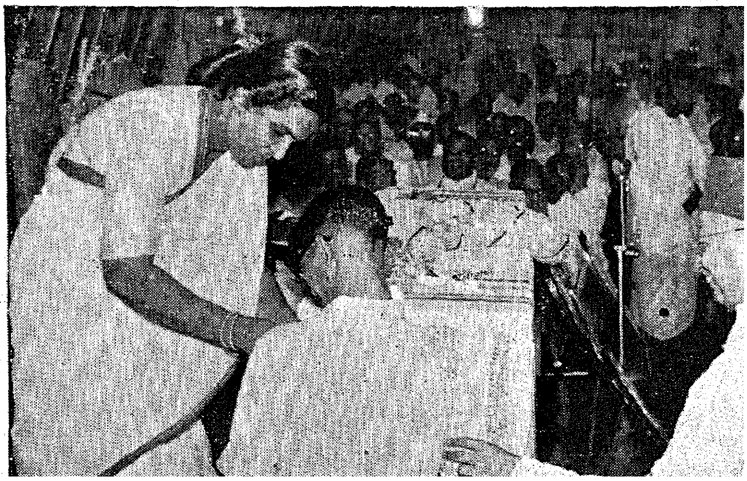
Milk is a highly and easily perishable article of food. It is also a fertile medium for the rapid bacteriological activity which is responsible for the spoilage of milk. Some bacteria are also responsible for the spread of diseases through milk. In order to make the milk free from such bacterial contamination, the system of pasteurization has been recommended. Under this system, milk is subjected to a heating and cold treatment under the H.T.S.T. method, i.e., milk is heated to 161° F for 15 seconds and immediately cooled to 40 °F. Pasteurization thus makes milk safe to drink and prolongs its keeping quality. Under this scheme of pasteurization, the Madras Co-operative Milk Supply Union was the first to instal a pasteurization plant in 1939. Next, a batch pasteurizer of 60 gallons per hour capacity at a cost of Rs. 0.32 lakh was installed by the Kodaikanal Co-operative Milk Supply Union in the first year of the Second Five-Plan with Government of India aid and as a result of this, the Union has raised its production capacity from 60 Madras measures per day to 220 Madras measures per day at present. The dairy machinery also provides for equipments for butter and cheese manufacture and this also helps the Union to convert all surplus of milk into butter and cheddar cheese for which there is great demand in the country. Another proposal for the installation of a pasteurization plant H.T.S.T. 440 gallons per hour capacity is for the Coimbatore Co-operative Milk Supply Union at a cost of Rs. 8.33 lakhs. Arrangements are underway to get the dairy buildings ready and place an order for the plant which has to be imported from abroad.

Handling of milk requires also certain hygienic equipments and transport of milk through vans. A scheme was prepared for this under the plan on behalf of the Madras Co-operative Milk Supply Union and steps were taken to equip the Union with a transformer and an electrical can washer with a capacity for washing 6 cans at a time.

All these improvements have assisted the milk co-operatives in the State in the matter of augmenting their production, handling it in a hygienic way and processing it wherever necessary. At the close of the third year of the present Plan, Madras State had 696 Milk Supply Societies and 20 Milk Supply Unions working with a daily average production of 52,660 Madras measures as against 581 Milk Supply Societies and 19 Unions and a production of 39,200 Madras measures per day at the commencement of the plan.

(Please turn over)

Srimathi Lourdhammal Simon, Minister for Local Administration, presided over the 69th Anniversary Celebrations of the Hindu Theological High School, Mint Street, Madras, on 1st April 1959 and distributed prizes to the students.



Yet another important factor needed for the stabilization of the industry is the provision of insurance for cattle ; both the draught and the milch animals. Cattle insurance is not only effective as a means of making good the loss through death of animals, but it also reduces the incidence of disease and number of deaths. It will also help both aspects of cattle improvement, viz., feeding and breeding, and thereby by dairying industry will be helped. The Indian Council of Agricultural Research have recently forwarded a Pilot Scheme of Cattle Insurance for the consideration of the State Governments and to share the cost of the scheme at State level on 50 : 50 basis. When this scheme is implemented it would go a long way to impart a sense of security to the dairying industry.

Milk Marketing.

Milk co-operatives are essentially producers' organizations intended primarily to promote the interests of the milkmen producers. But at the same time, they cannot assume the position of a manopolist and dictate their terms to the consumer population at whatever price they desire. The price factor is all important to sustain the industry on the one hand and to draw the co-operation of the consumer. It is necessary therefore to set up an organization—like the Milk Marketing Board of England—with adequate representation of both the producer and the consumer interests, so as to even out the differences that might possibly exist. This arrangement together with more of intensive marketing organization and sales promotion, it should be possible in the near future to augment the *per-capita* consumption of milk in the Madras State which is at present as low as 4 oz.

Together with increased milk production, the milk co-operatives in Madras have increased their marketing side too, both in the matter of marketing fluid milk and also the by-products. More milk bars have been opened at busy centres, supply of hot milk on Railway platforms has become a normal feature while ice-cream parlours are opened according to the seasonal requirements of the customers.

(*Continued from page* 25)

different types of bodies and glazes which could be adopted by Karigiri potters. A suitable body composition has already been standardized which is a great improvement on the types of low-fired porous body that is being used by the potters. Different coloured glazes, like deep yellow, blue, chocolate, green and black have been tested and standardized. New designs in keeping with modern trends have been evolved and several items like ash-trays, jars, flower vases, wall brackets, fancy toys, etc., are being produced. As envisaged in the scheme, six potters on a stipend of Rs. 50 per mensem each were recently given intensive practical training at the Ceramic Institute, Gudur, in all the techniques of production of imported items of ceramic articles. They were also trained in the operation and control of the down-draught kiln similar to the one built for them in their village. Further, in order to give more confidence in operating the kiln, an experienced kiln fireman has also been appointed at Karigiri. The six potters have been supplied with improved tools, standard glazes and body mixture, etc., worth about Rs. 250 each free of cost in addition to the free use of the kiln and free services of the fireman referred above.

An industrial co-operative has also been organized with these potters as members and financial assistance in the form of reserve fund grants, share-capital grants and working capital loans have all been given. Proposals for providing these potters with dork sheds, free of cost, were also underway.

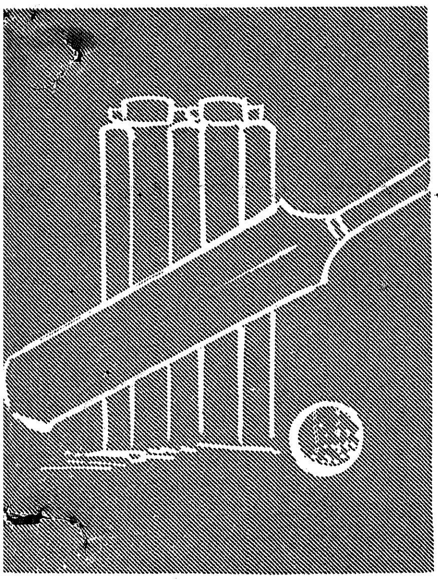
All these efforts of Government at revitalizing this traditional craft at Karigiri have helped to create a new zeal among the craftsmen. It is hoped that these potters and their descendants will long continue to cherish the memory of late Sanyasi Udayar—the originator of glazed pottery at Karigiri and that the village will continue to be known for its art pottery.

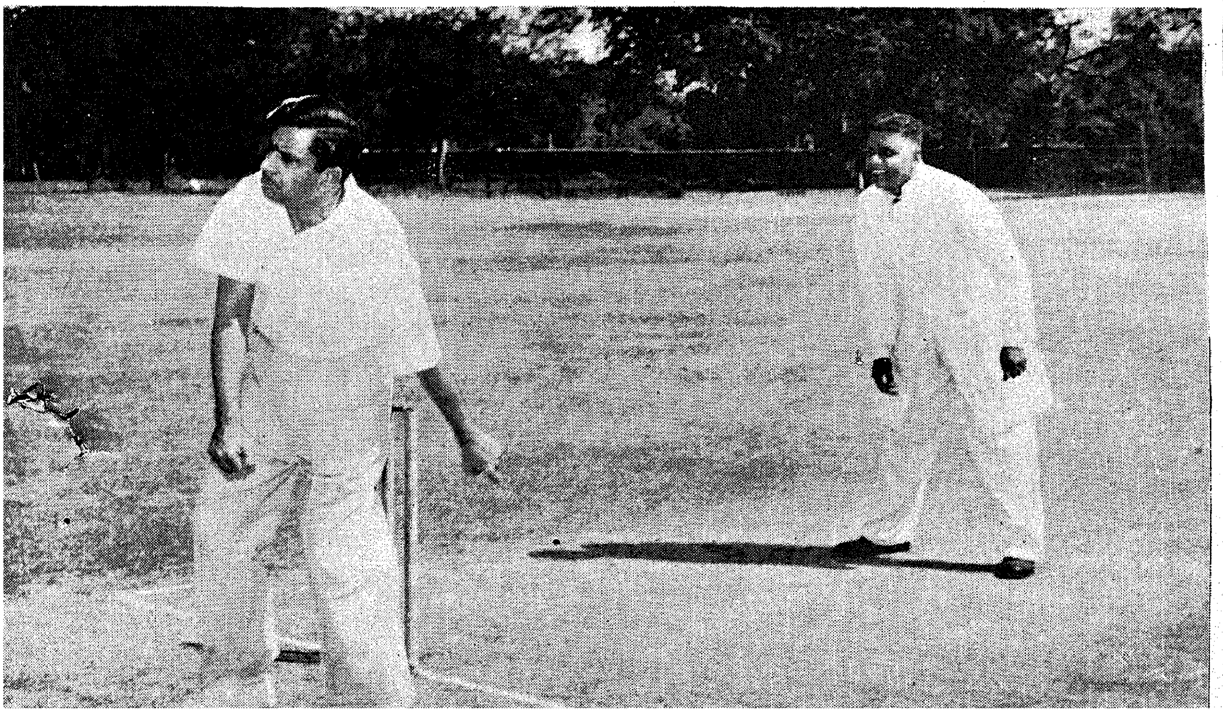
(*Coitinued from page* 26)

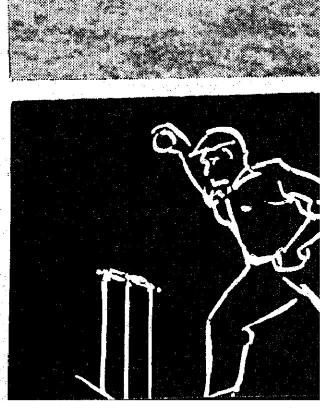
and milk bars for the sale of more milk and milk by-products in addition to the house delivery of milk by cycle vendors. Coolers have been installed in some centres to sell rose-milk and ice-cream. A well-organized marketing machinery, with all the necessary equipments, particularly milk packed in fine labelled bottles is bound to catch the eye of the consumer. The price factor is yet another important consideration. With increased production and a fall in the general level of prices in due course, particularly of the cattle-feed-stuff, the market price of milk is also likely to go down and come within the reach of the common man.

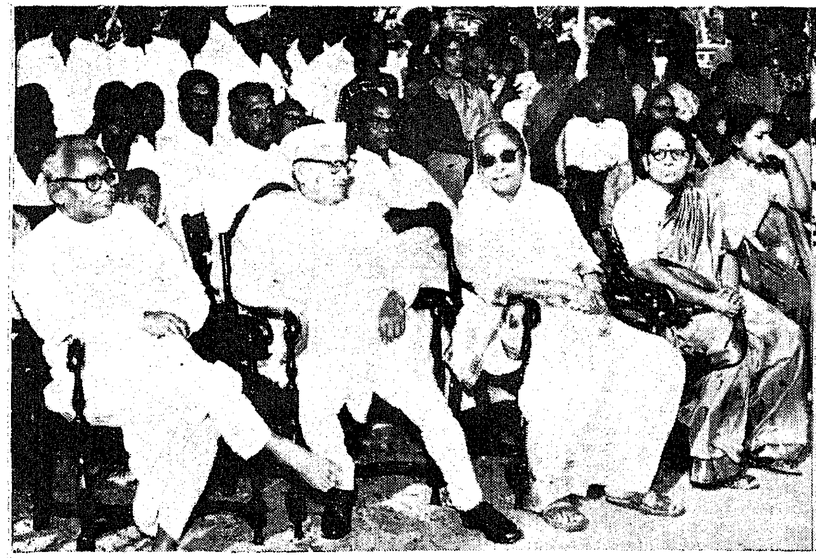
Intensive propaganda to bring home to the people, the tremendous value of " milk " is called for. Audo-visual equipments are necessary to demonstrate to the public the importance of " milk " in the daily diet of the people, particularly of the growing children, expectant mothers, the old and the decrepit. A special scheme for the purpose is prposed to be included in the ensuing Third Five-Year Plan. In the United Kingdom 80 per cent of the milk produced in the country is consumed in the fluid form. The Milk Marketing Board, constituted with the representatives from all regions of the country, has become a unique institution working in close co-operation with the Government. The Board is responsible for fixing the price of milk and for its fair and efficient distribution. Similar organizations started in our State would help to achieve the objectives and expand the market for fluid milk. Under the future socialistic set up of our country, the co-operatives will be called upon to play a significant role not only in building up the production of milk in the State to the best advantage of the producer but also in its distribution to the ultimate benefit of the consumer.

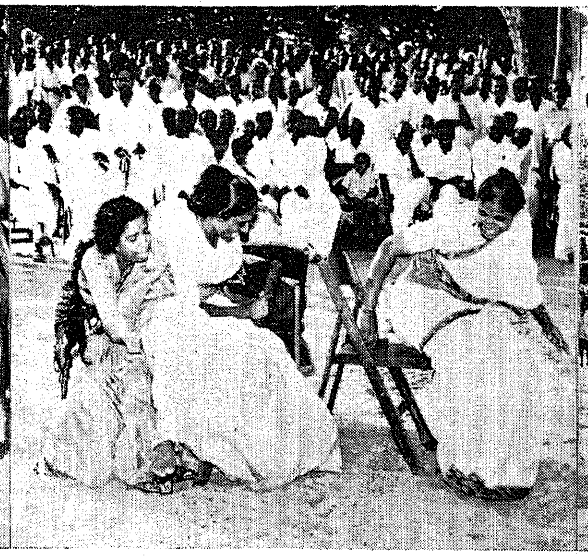
Legislators' DAY

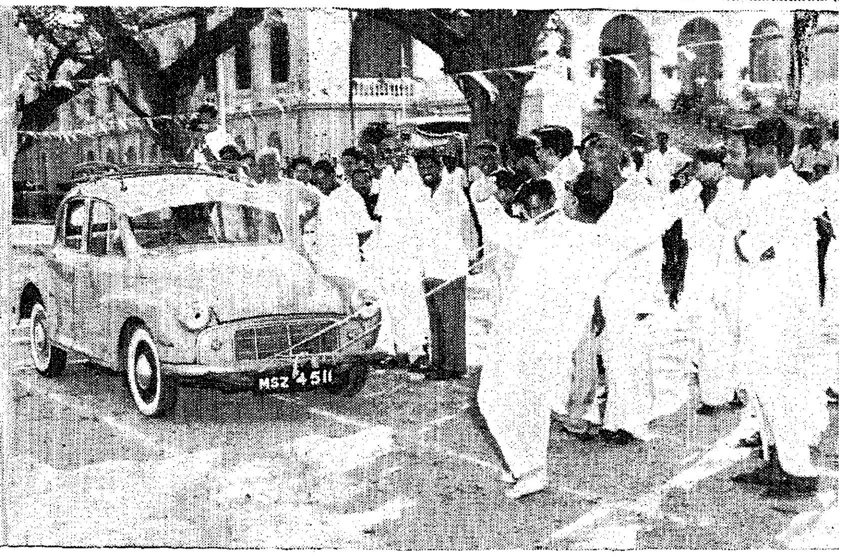












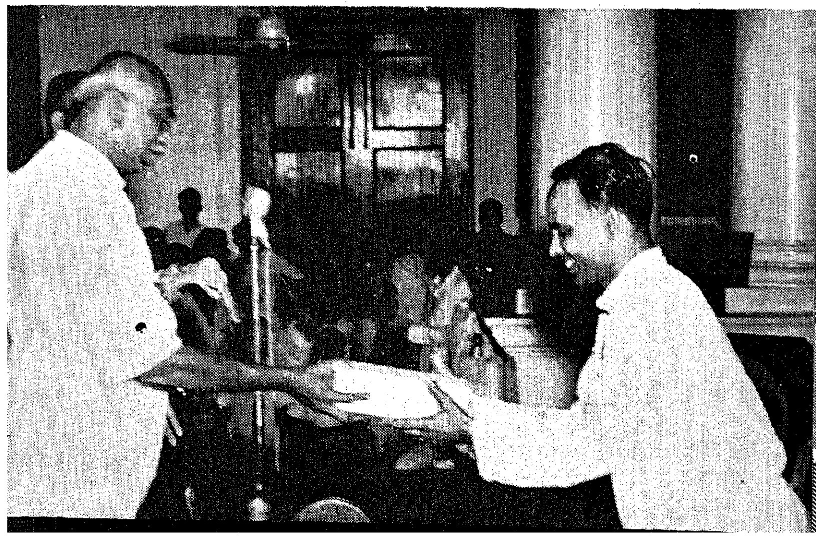
Legislators' Day

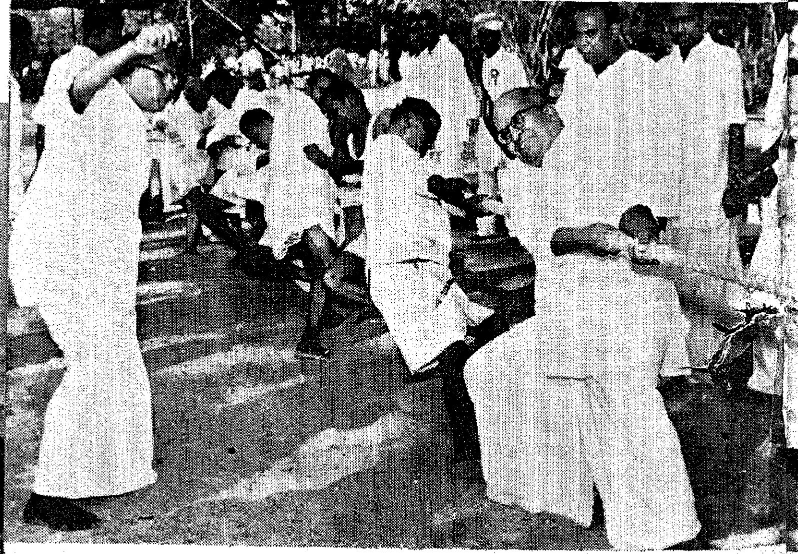
Legislators' Day Sports were held on 27th, 28th and 29th of March. On 27th, a Cricket match was held between the Governor's XI and Chief Minister's XI. The photographs on the previous page show the Chief Minister, Finance Minister and others inaction.

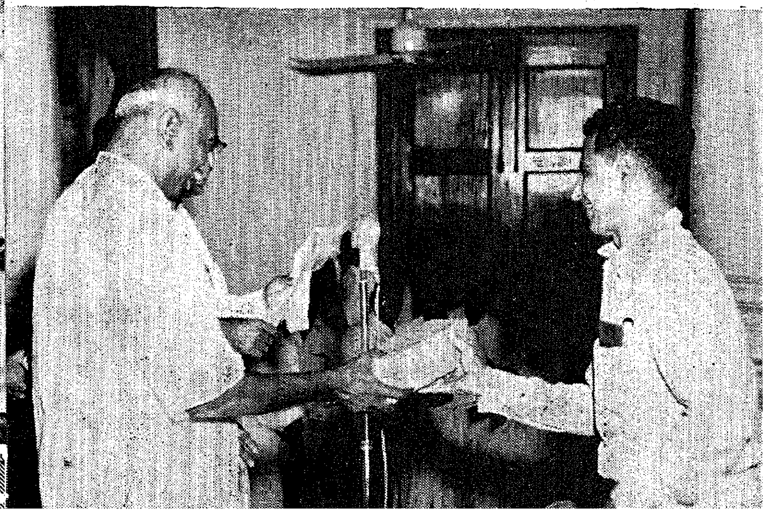
Top Row: Fancy Dress Competition in Progress.

Above: Women's Musical Chair, Breaking the pot and putting the shot. Sri Rashid pulling a car with his teeth.

Below: Tug of War, and Prizes being distributed by the Chief Minister.







Improvement of Environmental Sanitation

Research-*cum*-Action Project

Dr. S. Subbiah and Dr. Isaac Joseph.

The Research-*cum*-Action Project is essentially an Action Project. The need of the moment is a study with action in rural areas with a view to improve health conditions. Everyone knows that in India more than 80 per cent of people live in villages. Many people live in villages with a population between 600 and 1,600. The purpose of the Research-*cum*-Action Project is to study conditions in villages of this size, with a view to improve environmental sanitation. There are three Research-*cum*-Action Projects now working in India, one at Poonamallee (near Madras), the other at Singur (near Calcutta) and the third at Najafgarh (near Delhi). These Projects are financed by Ford Foundation and are run by our Governments.

Education or learning, aims at people having chances to acquire certain experience, which will make them change their attitude and behaviour. For this we must see that :

1. Adequate information or knowledge is furnished.
2. People have motivation.
3. People get experience.

Education aimed at improving health habits, should cater to these three aspects. This is attempted in the Health Education work now being carried on in the Research-*cum*-Action villages, in selected areas of Chingleput district.

Preliminary work.

It is found necessary to do a certain amount of preliminary work in these villages before launching the Health Education programme. Village Level Workers from the experimental villages were first given a seven days' intensive training at the Research-*cum*-Action Project, Poonamallee. Selected Health Inspectors were also trained for three days at Poonamallee, in the techniques of Health Education. The essential principles involved in the Health Education programme were given to them in a series of steps, consisting of practical work and discussion sessions. Demonstrations which can be held under village conditions were arranged at Poonamallee. Practice in the use of Audio Visual Aids for Health Education was given. Audio Visual Aids produced after pretesting in neighbouring villages were also given to them.

Flash-Card Stories, Filmstrip Stories, Films Posters, Pamphlets, Tape Recorded Dramas, and Puppet shows were used.

To begin with, the Village Level Worker contacts village leaders individually. He talks to them about the village, the Health conditions in the village, achievements of the village, habits now prevalent in the village, problems in the village, and whether improved habits are likely to solve certain problems in the village. During his conversation, he uses questions as a method to encourage the village leader to think about the problems in his village, achievements of his village, and possible solutions to these problems.

The Village Level Worker interviews the different kinds of leaders in the village individually in the same way, to prepare the stage for the next step. He contacts official leaders like the Village Munsif and the Panchayat Board President, leaders among the elders—leaders among young persons, religious leaders, school teachers, leaders in Cheri, leaders among occupational groups and agricultural workers, etc.

Group discussions.

As a next step, these leaders are invited to meet in a group. The problems of the village are brought up for discussion. In such discussion groups, certain demonstrations are arranged, e.g., demonstrations of flash-card picture stories by the Village Level Workers, or the performance of an actual experiment showing how flies carry disease, demonstration of living flies from the village itself, and how food gets contaminated, and how diseases like dysentery, worms, diarrhoea, cholera, etc., spread in villages. The fact that such diseases are caused by living agents, which are voided in the faeces by persons who suffer from them, is thus brought home to the villagers by these demonstrations.

At this stage, the local village death registers are consulted and particulars of persons who died of dysentery and diarrhoea, cholera, etc., during the last one year or more, are brought to the notice of the village leaders, to help them to realize the magnitude of the problem of water-borne and soil-borne diseases, and the fact that all these can be prevented by simple methods, only if people have the will to do so. Likewise, the number of deaths among children under five years, in a year, is shown up as another indicator of the loss to the village, by causes, which with a little effort on the part of the villagers, can likewise be prevented. Comparative infant mortality rates in other countries are then exhibited, to help them appreciate the acuteness of the problem. It is a fact that every year in India two million die of infectious diseases of intestinal origin. The enormous economic loss on account of such

mortality and morbidity from bowel diseases, is indeed a striking feature which when brought home to village leaders, produces a reaction in them. By this time, the leaders get sufficiently motivated to plan for some kind of action to prevent such diseases. The Social Education Organizers guide the Village Level Workers in carrying out such group discussions. Similarly, group discussions are organized among women separately with the help of the Woman Social Education Organizer and the Health Visitor and Maternity Assistant. Thus, all available professional workers are invited for some of the discussion meetings, so that people can hear from them direct.

Planning action.

Now the village leaders form a main committee to plan a programme for their village. They form small executive committees for each area of the village to educate other people. The members of these committees use flash-card stories and posters to explain to their people how diseases are spread in the village and how they can stop such diseases and how they can promote their health. They contact individual families and explain these points, though specially prepared pamphlets which are distributed to all the families.

Exhibitions and demonstrations.

An exhibition is organized usually in the village school. Villagers now have a chance to actually see what they discussed till now.

Models of latrines are then shown to demonstrate the different parts of the latrine. They see now how they can have latrines in their houses at very moderate cost. They now learn that Government have decided to help them by a subsidy, by giving the essential parts of the latrine up to three-fourth cost. The poorer Harijans get further help up to 90 per cent of the cost of a latrine, thanks to the Harijan Welfare Department.

Side by side with the above activities, the children at school learn the above principles, through school flash-card stories, a series of school activities and school exhibitions. Latrines have now been provided in these schools, so that children can practice what they learn. The school teachers have been given special training for a day with practical demonstrations and discussions by the Research-*cum*-Action Project Team. This training camp was conducted at two centres with the active co-operation of the District Educational authorities. Action schedules were discussed with teachers in these schools so that children can learn about latrines by actually using them in the proper manner. "How to use a latrine" is demonstrated. Latrine models have been built by school children. School children also demonstrated the latrine idea by action songs and dramas. They wrote short descriptions of what they saw at the exhibitions.

Public meetings.

As a reinforcement to the above activities, public meetings are held at which the committee members report on their activities. Talks by professional workers, i.e., Doctor of Primary Health Centre, Health Visitor, Health Inspector and Social Education Organizer and others help to keep the education programme going, so that villagers have a chance of getting really educated. Educational work is given to as many villagers as possible, so that they can have some learning experience. Professional workers offer necessary guidance to this process of education which is by no means an easy job. But current events show that patient and hard work does yield results in the long run. The stage is now set for the construction phase.

The construction phase.

With the above activities under way, people start asking for latrines. The Block Health Inspector arranges to give them the essential parts of the latrine at subsidized rates. The Village Level Worker helps him. Construction Committees are formed in each village. They help in the distribution of these materials, collection of other materials required for latrines and also explain to other villages the details of latrine construction. Village masons are now given training by the Engineer and construction work is started. The Block Junior Engineer and Health Inspector also train masons and villagers in construction of latrines as the work progresses. Masons are paid by Block Development Officers on the training day.

Now the villagers are in a position to carry on construction of more latrines. In many villages it is a pleasant sight to see the enthusiasm of villagers in this useful activity.

"Use meetings" are now organized to stress the use of latrines. Use-cards are given to all the families who construct latrines. Problems of how to get water in scarcity areas are presented through appropriate agencies.

Panchayats are requested to help schools to get water. In one village where there is acute water scarcity, the Assistant Engineer, Rural Water-supply Scheme, explained to villagers how to secure water-supply under the Rural Comprehensive Water-supply Scheme.

Village Leaders' camp at Poonamallee.

The Research-*cum*-Action Project Team felt that as an aid to the promotion of the educational programme in the Community Organization villages, it would be a good thing if the leaders of a few villages are brought to Poonamallee and given an experience in the use of latrines and in using discussions and health education material to promote the village education programme. It was expected that they would be initiated to formal habit changes like using latrines as there would not be any alternative to this while staying at the Research-*cum*-Action Project Campus at Poonamallee. To this end, a two days' camp for Village Leaders for both men and women was organized at Poonamallee in April 1958.

The education of villagers is a slow process and the "habit change" is expected to take a long time. However, the trend in our experimental villages is encouraging. We are working in a field where it takes time to get visible results.

Syllabus for Tamil Typewriting Examination

The Government have adopted a syllabus for testing the typists trained in Tamil Typewriting at the Central Training Institute, Madras, on the completion of the course. The syllabus is as follows :—

I—FIRST PAPER.

Speed Test :

To typewrite a passage of 540 words in double line spacing. Special attention must be paid to accuracy and neatness. Time—15 minutes. (100 marks).

Note.—Five strokes (excluding the use of space bar and shift key) will be counted as a word.

Presence of more than 4 per cent errors or omissions may be taken to indicate that the standard has not been reached.

II—SECOND PAPER.

This paper is intended to serve as a test of the candidate's knowledge of spelling, punctuation, printer's corrections and abbreviations and shall contain five questions covering the following :—

(*a*) To type correctly from rough and unarranged drafts in manuscript (lithographed) two questions not exceeding 540 words of official or commercial correspondence, Government Orders, Proceedings, Memoranda, Notices, Legal documents, etc., involving advanced commercial terms, display and correct arrangement of the component parts—headings, subtitles, marginal and foot-notes, quotations, etc. (45 marks).

(*b*) To type two advanced statistical tables and tabular matter (40 marks).

(*c*) Display work (15 marks).

Note.—All the above questions will be in manuscript and will consist of rough and unarranged matter. The candidates will be asked to take not more than three carbon copies for one of the questions.

Time.—Two hours.

The examinations will be conducted by the Commissioner for Government Examinations, Madras. Candidates already qualified in English typewriting by the Higher Grade will be exempted, from passing the practical test. The typists trained at the Central Training Institute may appear thrice for the examination, without payment of fees. The other Government servants, except those who are employed on emergency basis, may also appear for the Lower or Higher Grade Examination in Tamil typewriting conducted by the Commissioner for Government Examinations thrice, without payment of fees. The typists, who undergo the training in the Central Training Institute shall apply through the Secretary, Official Language Act Implementation Committee for the first time only, for appearance, without payment of fees. Those who are unsuccessful in their first attempt and other Government servants, who desire to appear for the examination shall submit their applications through the concerned Heads of Offices.

(*Continued from page* 16)

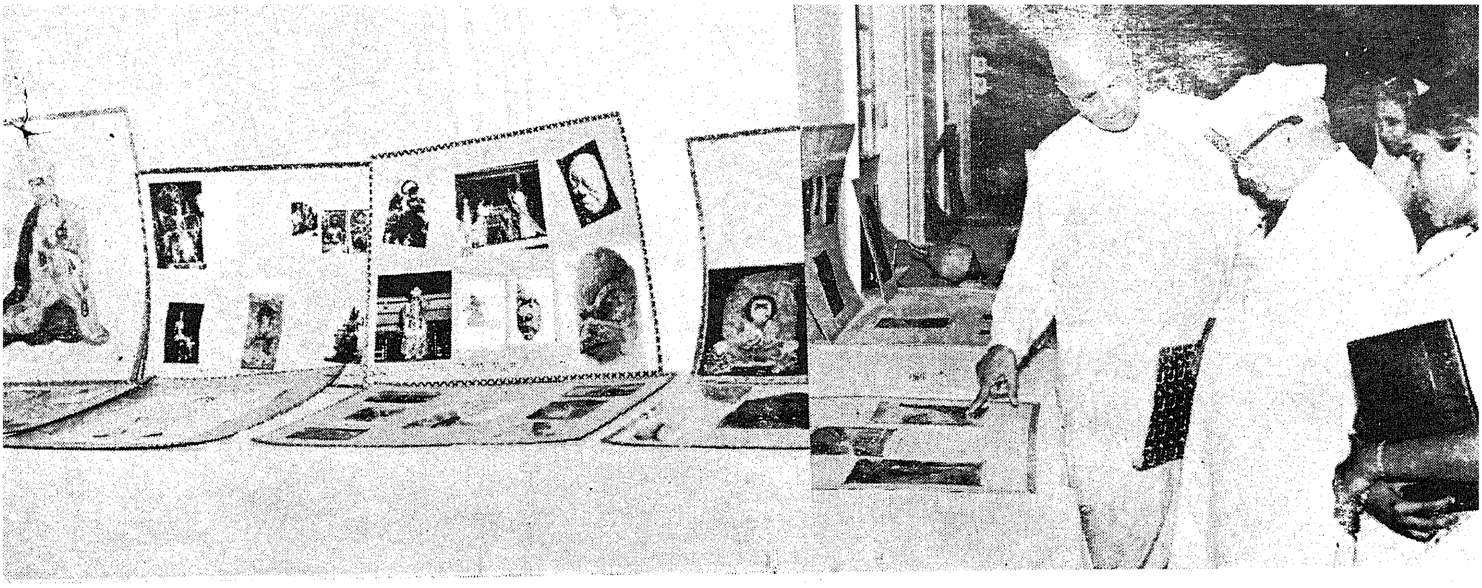
The Milk Scheme, in short, aims at giving assistance on the right lines to the producers to enable them to do their business on a properly regulated basis. Assured of a steady market and a guaranteed reasonable price, the producers will be enabled to concentrate on the production of milk of good quality at cheaper cost. The Government themselves will undertake the processing and distribution of milk thereby giving a guarantee to the consumers as to the purity of milk supplied. The control of the quality of market milk which is rather lax at present will be rigidly enforced under the new arrangements.

The Madras Dairy and Milk Project, which has been drawn up with the abovementioned objects in view, has been included as a Plan Scheme. The entire capital cost of the scheme will be obtained from the Union Government by way of loans and grants under the usual pattern of assistance by the Centre to the Dairy Schemes of the State. The Government of New Zealand have offered a gift of £215,000 for the plant and machinery required for Central Dairy. The scheme is well under way. The buildings for accommodating the first unit of 500 cattle are nearing completion.

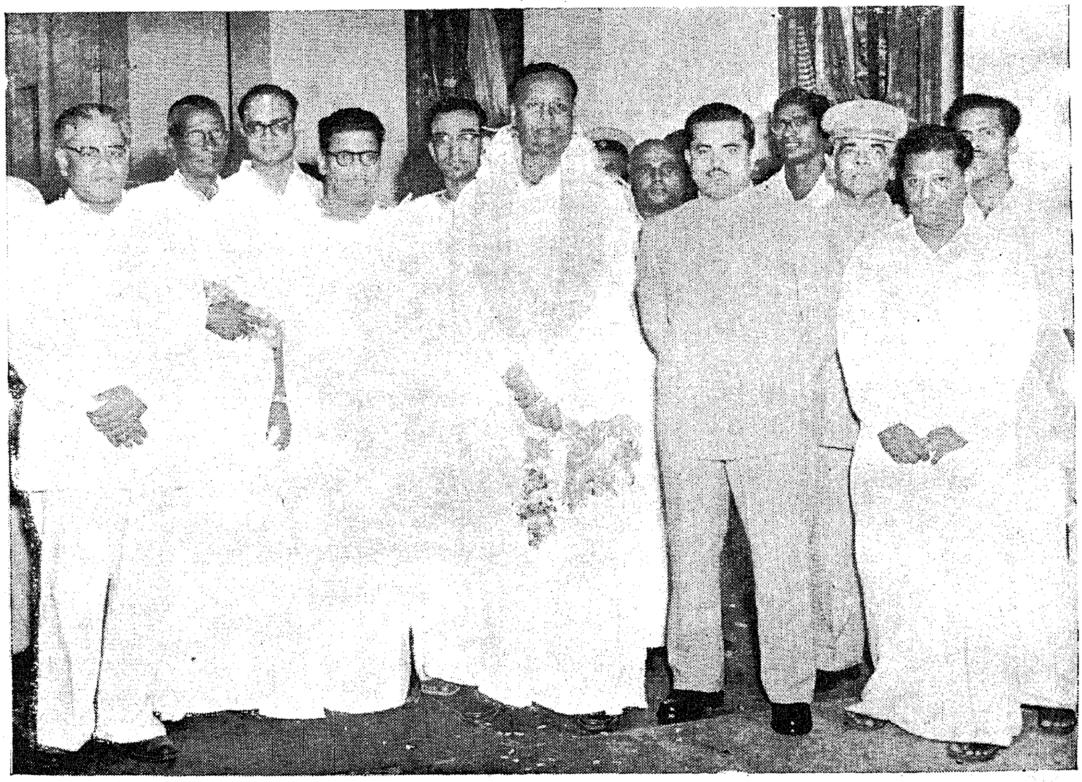
Considering the importance of a safe and satisfactory supply of milk to a large population in Madras City and in view of the measures to be taken for augmenting production, collection, processing and distribution of milk, the Government have recently formed a separate department with a Milk Commissioner as its head to tackle efficiently the milk supply position in the City.

The implementation of the Madras Dairy and Milk Project can best be achieved only by the close coordination of all the interests involved and only with that view an Advisdory Board has been constituted by the Government representing the different interests of the milk-trade. I heartily welcome you all to the first meeting of the Board and look forward to your counsel in all matters that may arise from time to time. I have no doubt that with your co-operation and advice the project will be implemented according to schedule and the milk-supply position in the City reorganised on sound lines.

[*From the speech delivered at the meeting of the State Milk Advisory Board on* 11*th April* 1959.]



An exhibition of " Indian Gods in Japan " was held at Raj Bhavan in March by Bikshu Chaman Lal. Photo shows the Bikshu explaining the significance of the exhibits to the Governor.



Sri V. T. Sambandan, Minister for Health of the Federation of Malaya, visited Madras recently. Photo shows Sri Sambandan being received on his arrival at the Madras Air Port.

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